2006 ON-SITE SAFETY AUDIT OF SAN DIEGO TROLLEY, INC. (SDTI)

RAIL TRANSIT SAFETY SECTION
RAIL TRANSIT AND CROSSING SAFETY BRANCH
CONSUMER PROTECTION AND SAFETY DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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FINAL REPORT

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2006 ON-SITE SAFETY AUDIT OF SAN DIEGO TROLLEY, INC.

ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Section and Railroad Operations & Safety Section staff conducted this system safety program audit. Staff members directly responsible for conducting audit and inspection activities include:

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1. EXECUTIVE SUMMARY

The Rail Transit Safety Section staff, assisted by the Railroad Operations Safety Branch staff, (staff) of the California Public Utilities Commission's (Commission) Consumer Protection and Safety Division conducted the third triennial, on-site, safety audit of the San Diego Trolley, Inc. (SDTI) from April 17, 2006 to April 21, 2006. The audit was comprehensive in nature and addressed safety programs and practices in the design, construction, operation, and maintenance of the system and also included a review of SDTI's security program and practices.

Track & switch, grade crossing, light rail vehicle, and overhead lines inspections were performed between March 7 and March 24, 2006. The on-site audit was preceded by an entrance meeting with SDTI April 17, 2006. The meeting included SDTI President-General Manager, Vice-President of Operations, System Safety Manager, Superintendent of Transportation, Human Resources Manager, Director of Transit Security, Superintendent of Wayside Maintenance, Superintendent of Light Rail Vehicles, and San Diego Association of Government (SANDAG) representative for the Director of Engineering. Audit activities began after the conclusion of the meeting.

On May 3, 2006, staff held an exit meeting with SDTI's President-General Manager, Vice-President of Operations, System Safety Manager, Superintendent of Transportation, Superintendent of Wayside Maintenance, Supervisor of Light Rail Vehicles, and SANDAG Director of Engineering, was held May 3, 2006. Staff provided a preliminary report concerning audit findings and possible recommendations for corrective actions.

Audit sessions were performed at SDTI offices and departments. Four (Nos. 1-4) checklists were dedicated specifically to the inspection of facilities, and equipment. The remaining checklists were devoted to the review of safety and security program adequacy, engineering practices and the verification of effective implementation of those programs.

Audit results indicate that SDTI has made continual improvements in implementing its system safety and system security programs. Auditors noted that SDTI continues to develop, refine, and improve those programs. Overhead contact systems and substation maintenance programs, light rail vehicle maintenance inspection schedules, and track and wayside training programs showed significant improvement between the 2003 and 2006 audits.

Despite that continued progress, staff identified safety and security program deficiencies. The deficiencies and subsequent recommendations for corrective action are described, where applicable, in the Results/Comments Section of each audit checklist. Of the 25 checklists used in the audit, 14 included recommendations for corrective actions.

Among the safety program elements found to be less than adequate, six were related to program deficiencies previously identified by staff during the 2003 SDTI Triennial Safety Audit. Those safety program elements are addressed in Checklist 4 – Traction Power Inspection – CPUC Inspector; Checklist 5 – Overhead Contact System Maintenance; Checklist 6 – Substation Maintenance; Checklist 17 – Configuration Management; Checklist 19 – Transit Security and; Checklist 23 – Light Rail Vehicle Maintenance.

The Introduction for this report is presented in Section 2. The Background, in Section 3, contains a description of the SDTI rail system and 2003 audit results. Section 4 describes the 2006 Audit Procedure. The Audit Findings and Recommendations are discussed in Section 5.

Acronyms are listed in Appendix A. The SDTI 2006 Triennial Safety Audit Checklist Index and the Recommendations List are included, respectively, in Appendices B, C. The Triennial Safety Audit Checklists are presented in Appendix D.

2. INTRODUCTION

The Commission's GO 164-C, Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems, and the Federal Transit Administration's (FTA) 49 Code of Federal Regulations (CFR) Part 659 Rail Fixed Guideway Systems: State Safety Oversight require the Commission to perform triennial, on-site, safety audits of each rail transit agency. The purpose of these audits is to verify compliance with and evaluate the effectiveness of each rail transit agency's System Safety Program Plan (SSPP). SDTI was last audited in March 2003.

On April 3, 2006, staff mailed a letter to SDTI's President-General Manager, including the 25 checklists that would serve as the basis for the safety audit,. That letter advised that the safety inspections associated with the triennial audit were performed in March 2006 and the audit would be scheduled with SDTI to begin April 17, 2006. Specific dates and times were subsequently confirmed with SDTI's System Safety Program Manager.

The track and switch inspection and grade crossing equipment inspection were performed by Railroad Operations and Safety Branch staff on March 7, 20, and 21, 2006. The overhead lines inspections were conducted by Rail Transit Safety Section staff on March 22-24, 2006. The light rail vehicle inspection (LRV) was performed by Railroad Operations and Safety Branch staff on March 20, 2006.

Staff held the audit entrance meeting with SDTI representatives on the morning of Monday, April 17, 2006. Those representatives included the President-General Manager, Vice-President of Operations, System Safety Manager, Human Resources Manager, Director of Transit Security, Superintendent of Wayside Maintenance, Superintendent of Light Rail Vehicles, and SANDAG representative for the Director of Engineering. At the meeting, staff provided a brief description of the audit process and discussed its expectation that the safety audit would be a positive, constructive, and cooperative process. SDTI representatives were invited to ask questions about the audit. Procedures for making any necessary schedule changes were also established.

Safety audit activities were performed beginning the afternoon of April 17, 2006 and concluded the afternoon of April 21, 2006. Interviews with SDTI representatives and reviews of various program records and other documents were the primary activities involved in the process. Specific tasks included in each of the audit checklists form the core of these activities. The auditors, however, were encouraged to examine safety program issues beyond those listed in the checklists to further help assure the efficacy of SDTI's safety program and its implementation.

A post-audit conference was held with SDTI representatives on May 3, 2006 attended by the President-General Manager, Vice-President of Operations, System Safety Manager, Superintendent of Wayside Maintenance, Supervisor of Light Rail Vehicles, and SANDAG Director of Engineering. At the post-audit conference, staff provided SDTI representatives with a verbal synopsis of the preliminary findings and recommendations from the 25 checklists. Staff explained to attendees a preliminary draft audit report would be prepared for SDTI review and comments.

3. BACKGROUND

The Metropolitan Transit Development Board (MTDB) was created in 1975 and empowered to design, engineer, and build fixed guideway facilities within San Diego County, California. SDTI was created by the MTDB in August 1980 as a wholly owned subsidiary responsible for operation and maintenance of the Light Rail Transit (LRT) system. The San Diego Regional Transportation Consolidation Act, effective January 1, 2003, directs consolidation of the (1) planning and programming, and (2) engineering and construction functions among San Diego Association of Governments (SANDAG), MTDB, and North San Diego County Transit Development Board (NSDCTDB). The consolidation within the SANDAG structure began with the "initial transfer" occurring by July 2003, the second phase by February 2004, and final completion by 2005.

A. SDTI Rail System Description

SDTI rail transit operations are in street, surface operation, and semi-exclusive right-of-way. The majority of the lines are double-track with the exception of the single track line between the Gillespie Field Station and Santee Town Center Station. SDTI trains transported more than 75,000 passengers on an average weekday in 2005. During special events such as baseball, football and other public events, patronage varies between 100,000 and 200,000 passengers.

SDTI Lines

SDTI operates three lines described as:

- Blue Line - Revenue service began on the Blue Line on July 26, 1981. The Blue Line currently extends 19.1 miles from the Old Town Transit Center to the San Ysidro Station at the U.S-Mexico international border. Of the total 19.1 miles, 1.4 miles (India and C Streets to 13th and Commercial) are operated on city streets; and 14.1 miles from 13th and Commercial Streets to San Ysidro International Border are operated on semi-exclusive right of way. The Blue Line operates through four jurisdictions: the cities of San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.
- Green Line - Revenue service began on the Green Line on July 10, 2005. The line begins at the Old Town Transit Center station and extends 19.1 miles through Mission Valley, under San Diego State University via a subway and continues east on semi-exclusive right-of-way to Cuyamaca Street in Santee. The last 0.6 miles of the line are operated on city streets before terminating at the Santee Town Center Station
- Orange Line – Revenue service on the first phase of the Orange Line from Imperial Transfer to the Euclid Station began on March 23, 1986. The line was extended to El Cajon in 1989 and to Santee in 1995. The Orange Line is 20.6 miles from the Imperial and 12th Terminal Station, via the Bayside Corridor and Downtown San Diego to the Gillespie Field Station in El Cajon. The Orange Line route serves the Bayside Corridor with the Gaslamp Quarter,

Convention Center, and Seaport Village Stations adjacent to Harbor Drive. The line continues 1.4 miles on the city streets shared with the Blue Line (India and C Streets to 13th and Commercial Streets), then continues independently east for two additional miles on Commercial Street to 32nd Street. After 32nd Street, the line continues east for an additional 15.6 miles on semi-exclusive right-of-way to the Gillespie Field Station in El Cajon. The Orange Line operates through four jurisdictions including the City of San Diego, Lemon Grove, La Mesa and El Cajon.

Mid Coast Extension

The Mid-Coast Extension currently in the planning phase is SANDAG's next extension. The Mid-Coast Extension is 10.7 miles in length and is tentatively scheduled for completion by 2014. This extension parallels the Interstate 5 freeway corridor and will be constructed on existing right-of-way currently used by Amtrak, Burlington Northern Santa Fe Railroad and the North County Transit District Coaster Train. The Project starts north of Taylor Street Crossing (Old Town Transit Center) on the Blue Line and will extend trolley service to the University Towne Center / La Jolla Village Drive area. The 10.7 mile project will be constructed in two segments. The Balboa segment, 3.6 miles in length, starts from Old Town and terminates at Balboa Avenue serving three Light Rail Transit (LRT) stations. The University segment is 7.3 miles in length and continues from Balboa Avenue to the University Towne Center area and will serve six LRT stations.

SANDAG Engineering Department has primary responsibility for the planning, design, construction, testing and safety certification of this extension.

B. SDTI 2003 Triennial Audit Recommendations Status

Staff performed the previous triennial on-site safety audit in March 2003 and used twenty-five checklists. The 2003 audit resulted in 24 recommendations for corrective actions. The recommendations focused on important details of the system safety program plan and the plan's implementation.

By Resolution ST-65, dated October 2, 2003, the Commission adopted staff's audit report and ordered SDTI to develop an appropriate corrective action plan and implementation schedule to carry out staff's recommendations. SDTI was also ordered to provide staff with monthly status reports of its progress in implementing the corrective actions until they were completed.

SDTI developed and submitted a corrective action plan and schedule to implement each of the 24 recommendations. SDTI also met with staff and provided monthly written reports concerning the status of corrective actions for each of the 24 recommendations.

By December 2005, SDTI had reported completion of 20 of the 24 corrective actions required by the Commission following the 2003 safety audit. The four remaining open corrective actions not completed prior to the 2006 audit, included:

- The recommendation for SDTI to close "open corrective action items" in LRV Maintenance
- The recommendation for SDTI to implement a method to monitor the status of corrective actions identified in the LRV Inspection Reports
- The recommendation for SDTI to develop and implement a plan to achieve conformance to GO95 Rule 74.4-F
- The recommendation for SANDAG (MTDB) to develop Configuration Control Procedures

Findings of the 2006 audit indicated there are six recommendations from 2003 that had not been adequately addressed. Those recommendations are summarized as follows:

- SDTI should survey the entire system to identify and correct General Order 95 Rule 74.4-F violations. A similar finding was recorded during on-site inspection of the overhead contact system in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 16.
- SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms for Overhead Contact System Maintenance. A similar finding was recorded during the inspection records review of overhead contact system maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 14.
- SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms for Substation Maintenance. A similar finding was recorded during the inspection records review of overhead contact system maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 22.
- SANDAG should develop Configuration Management control procedures for all projects to ensure that all property, equipment, system design elements, etc. are documented accurately and completely. This safety concern was addressed as Recommendation 9 in the 2003 SDTI Triennial Safety Audit. Staff was aware of the status of that project prior to the 2006 audit based on the monthly status reports from SDTI.
- SDTI's System Security Program Plan does accurately reflect its security program practices however, staff determined SDTI is not performing all elements required in the System Security Program Plan**.** A similar finding was recorded during the transit security records review in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 10.
- SDTI should determine the extent of the backlog of light rail vehicle maintenance entries to the Ellipse System (maintenance database system) and develop a system to ensure that all entries are entered into the system and tracked to closure. A similar finding was recorded during the records review of light rail vehicle

maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 4.

4. AUDIT PROCEDURE

Staff performed the 2006 audit in accordance with Rail Transit Safety Section Procedure RTSS-4, titled Procedure for Performing Triennial Safety Audits of Rail Transit Systems. Staff developed 25 checklists to evaluate the adequacy of SDTI's system safety program and the efficacy of its implementation. The safety evaluation included the system's various departments and programs and processes that have system safety functions and responsibilities. It is based on Commission and FTA requirements, American Public Transportation Association system safety program guidelines, SDTI's system safety program plan, safety related SDTI documents, and the staff's knowledge of the transit system. An index of the 25 checklists is contained in Appendix B.

Each checklist identifies the core safety-related elements and characteristics that staff audited or reviewed. Each of the checklists also references Commission, SDTI, and other documents that establish the safety program requirements. In addition, the completed checklists may include reference to the methods used by staff for evaluating compliance with the safety program requirements. These methods may include:

- Discussions and interviews with SDTI management
- Reviews of rules, procedures, policies, and records
- Observations of operations and maintenance activities
- Interviews with rank and file employees
- Inspections and measurements of equipment and infrastructure

Upon completion of the safety audit and inspection activities associated with each checklist, staff reviewed its findings and, if appropriate, its preliminary recommendations for corrective actions with the respective SDTI representatives. This practice not only provides a chance to clear up any misunderstandings about the findings and recommendations, it also provides the SDTI representative an opportunity to promptly address any necessary safety improvements.

In recent years, SDTI's internal safety audit program has become increasingly comprehensive and effective in identifying safety program elements requiring improvement. While the safety audit did not dwell excessively on safety program deficiencies that SDTI had already identified and addressed, staff auditors did make note of some specific deficiencies. The auditors also included recommendations that the corrective action plans, developed by SDTI's internal safety audit process, be completed.

The audit checklists did focus on system safety program requirements that affect the safety of the public, employees, and property and that are known or believed to be important to reducing safety hazards, preventing accidents, and increasing security.

5. FINDINGS AND RECOMMENDATIONS

Staff audited various SDTI departments, programs and processes, which have rail transit system safety program responsibilities. In some previous safety audit reports, staff addressed its findings and recommendations by grouping them according to the transit agency departments where deficiencies were identified. In this report, however, it was decided not to incorporate that sort of grouping because it could detract from the integrated organizational nature of the system safety concept. .

The auditors and inspectors found that the SDTI rail transit system has a comprehensive SSPP and SDTI has been increasingly effective in implementing that plan. The findings from the audit indicate that SDTI made significant progress between the 2003 and 2006. Even though the 2006 audit contains 30 recommendations, they should be viewed in the context of a safety program that has been developed and expanded considerably since 2003.

Specific improvements and corrective actions were seen in the areas of overhead contact systems and substation maintenance programs, light rail vehicle maintenance inspection schedules, and track and wayside training programs, and revisions to the system safety program plan to accurately reflect standard operating procedure inspection intervals.

Audit findings identified areas where additional changes should further improve SDTI's system safety program. As noted earlier, there were six program elements found to be less than adequate during the 2006 audit, which were similar to deficiencies found during the 2003 audit. Those elements are addressed in 2006 checklists as follows:

Checklist 4 – Traction Power Inspection: CPUC Inspector - SDTI should survey the entire system to identify and correct General Order 95 Rule 74.4-F violations. A similar finding was recorded during on-site inspection of the overhead contact system in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 16.

Checklist 5 – Overhead Contact System Maintenance - SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms for the Overhead Contact System Maintenance. A similar finding was recorded during the inspection records review of overhead contact system maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 14.

Checklist 6 Substation Maintenance– SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms for the Substation Maintenance. A similar finding was recorded during the inspection records review of overhead contact system maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 22.

Checklist 17 – Configuration Management - SANDAG should develop Configuration Management control procedures for all projects to ensure that thorough configuration records and controls are in effect demonstrating that an audit trail exists, tracking the current facility or equipment configuration back to its inception; latest approved set of documents is released for construction and operations; and all completed documentation

concerning changes or updates of as-built documents are kept on-file at SANDAG's Engineering offices.This safety concern was addressed as Recommendation 9 in the 2003 SDTI Triennial Safety Audit. SDTI in its monthly status reports informed Staff of the project.

Checklist 19 – Transit Security – SDTI's System Security Program Plan does accurately reflect its security program practices however, SDTI is not performing all elements required in the System Security Program Plan. A similar finding was recorded during the transit security records review in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 10.

Checklist 23 – Light Rail Vehicle Maintenance - SDTI should determine the extent of the backlog of light rail vehicle maintenance entries to the Ellipse System and develop a system to ensure that all entries are entered into the system and tracked to closure. A similar finding was recorded during the records review of light rail vehicle maintenance in the 2003 SDTI Triennial Safety Audit and addressed as Recommendation 4.

Complete findings for each element of the safety program reviewed by the auditors and inspectors can be found in the audit checklists. Specifically, those findings for each element/characteristic can be found under the Results/Comments heading on each of the 25 checklists. There are four appendices attached to this report:

A. Acronyms

B. SDTI 2006 Triennial Safety Audit Checklist Index

C. SDTI 2006 Triennial Safety Audit Recommendations List

D. SDTI 2006 Triennial Safety Audit Checklists

The SDTI 2006 Triennial Safety Audit was a comprehensive review of SDTI's system safety program elements and their implementation. To achieve that end, auditors and inspectors reviewed system safety program elements, examined and evaluated selected program records, and inspected selected facilities and equipment.

Listed below, in outline form and in the same order as the audit checklists, are the SDTI system safety program's elements, which were reviewed or inspected. Each entry also includes, when appropriate, a brief summary of staff's findings of deficient conditions and recommendations to SDTI for corrective action.

1. Light Rail Vehicle Inspection

Deficiency found: One condition not in compliance with LRV SOP's.

Recommendation:

1. SDTI should ensure that the current visual inspection program of cow-catchers at the required interval is adequate for identifying those that are defective.

2. Track and Switch Inspection

Deficiency found: Various conditions were not in compliance with 49 CFR Part 213.

Recommendation:

2. SDTI should adjust the point switch gap for Switch Nos. 11B and 15B.

3. SDTI should review their existing track "open" defect list and ensure that all open defects are properly labeled on the mainline as required by FRA Rules.

3. Grade Crossing Warning Devices Inspection

Deficiency found: Various conditions were not in compliance with 49 CFR Part 234.

Recommendation:

4. SDTI should survey all grade crossings with multiple track to verify if multiple track signage is currently installed. Multiple track signage should be installed at locations where necessary.

5. SDTI should survey all grade crossings to verify if that gate arms are 3 ft. 6 in to 4ft. 6in. from crown of roadway. Gate arm height should be adjusted at locations where necessary.

6. SDTI should survey the cross-bucks at all grade crossings. Faded crossbucks that are found should be replaced at locations where necessary.

4. Traction Power Inspection

Deficiency found: Various conditions were not in compliance with GO 95.

Recommendation:

7. SDTI should survey the entire system to identify and correct General Order 95 Rule 74.4-F violations.

8. SDTI should confirm that tree branches near the OCS and supporting structures are properly trimmed per General Order 95, Rule 35.

9. SDTI should correct the General Maintenance Issues noted in this checklist: tighten down guy, install down guy cover, trim span wire tails, inspect, clean and/or repair "Johnny Ball" type insulators.

5. Overhead Contact System Inspection

Deficiency found: Condition for record keeping and status of corrective actions for defects is inadequate.

Recommendation:

10. SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms.

6. Substation Maintenance

Deficiency found: Condition for record keeping and status of corrective actions for defects is inadequate.

Recommendation:

11. SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms.

7. Emergency Vent Fans, Sump Pumps, Underground Phones – SDSU Underground Station Maintenance

Deficiency found: Revision of SOP for verification checklists, criteria, and inspection intervals is required.

Recommendation:

12. SDTI should modify existing SOP (Title: EVF/Jet Fan Manual Operation, Publication No. SDSU-001) in order to create preventive maintenance SOP. This SOP should include appropriate checklists and a decision on an appropriate inspection frequency for Emergency and Jet Fans.

13. SDTI should develop Sump Pump operation verification checklists for use by its Wayside Maintenance personnel during rainy season.

14. SDTI should develop a SOP for Emergency Trip System (ETS) to include testing criteria for emergency phones.

8. Wet Standpipes, Undercar Deluge Test – SDSU Underground Station Maintenance

No deficiency – No recommendation.

9. Track, Signals, and Vital Relay Maintenance

Deficiency found: Record keeping for maintenance inspection activities needs revision.

Recommendation:

15. SDTI should generate a Trouble Ticket for each inspected location of its track structure when needed repairs are to be performed by outside contractors. Moreover, SDTI should distinguish between comments and defects on its track structures preventive maintenance forms.

10. Track, Traction Power & Signal Maintainer Training Program

No deficiency – No recommendation

11. Grade Crossing Equipment Maintenance

No deficiency found - No recommendation.

12. Power Switch Maintenance

No deficiency – No recommendation

13. Train Operator, Line Supervisor, and Central Control Supervisor Training and Recertification

Deficiency found: SDTI procedures for training / re-certification and record keeping need revision.

Recommendation:

16. SDTI should adopt changes to verify and record that every person authorized to operate a train has a valid California Class B license with a passenger

endorsement or a valid California Class C license with a current medical examination as required by General Order 143-B.

SDTI should adopt procedures to ensure that at least every two years employees complete a comprehensive refresher training course appropriate to their responsibilities.

14. Internal Safety Audit Program

No deficiency – No recommendation.

15. Accident/Incident Reporting & Investigation

No deficiency – No recommendation.

16. Safety Certification Plan for the Mid-Coast Project

No deficiency – No recommendation.

17. Configuration Management

Deficiency found: SANDAG did not implement the corrective action for Recommendation 9 of the 2003 audit.

Recommendation:

18. SANDAG should develop Configuration Management control procedures for all projects to ensure that all property, equipment, system design elements, etc., are documented accurately and completely.

18. Hours of Service Records

Deficiency found: SDTI hours of service limits and hours of service record forms need revisions.

Recommendation:

19. SDTI should not allow safety sensitive employees from working beyond the hours of service limits established in General Order 143-B.

20. SDTI should adopt hours of service record form which clearly present covered employees on duty time, off-duty time, and consecutive hours off duty prior to assuming on duty status to ensure compliance with the Commission's hours of service requirements.

19. Transit Security

Deficiency found: Transit Security is not performing all elements required in the System Security Program Plan.

Recommendation:

21. SDTI should ensure that the Security and Critical Incident Committee (SCIC) meeting minutes record whether or not security breaches have occurred.

22. SDTI should adopt a method of regular scheduling of SCIC meetings or clearly establish another appropriate method to determine a minimum frequency between such committee meetings.

23. SDTI should adopt a means to follow-up action items from the many constructive ideas and activities identified and proposed in its SCIC meetings. Action items should be included in subsequent meeting agendas.

24. SDTI should develop and implement a program of security training, including identifying and reporting suspicious behavior, for all SDTI employees as identified in the threat and vulnerability assessment.

25. SDTI should develop and implement a regular program of in-house emergency security exercises.

26. SDTI should complete the SCIC and President and General Manager SSPP recommendation reviews then adopt and implement the proposed changes to the System Security Program Plan.

20. Hazardous Materials Programs

No deficiency – No recommendation

21. Emergency Response Familiarization Agency Program

No deficiency – No recommendation.

22. LRV Maintenance Training Program

Deficiency found: Employees off-duty for prolonged absence do not receive re-training or re-certification.

Recommendation:

27. SDTI should ensure that LRV employees who are off-duty for a prolonged absence period receive re-training or re-certification prior to resuming LRV maintenance inspection tasks.

23. Light Rail Vehicle

Deficiency found: Condition for record keeping and status of corrective actions for defects is inadequate.

Recommendation:

28. SDTI should ensure that a trouble report is generated for defects found during an LRV inspection that requires replacement parts.

29. SDTI should ensure that the current database system used for "tracking" the status of corrective actions taken on defects noted in the Trouble Tickets and Preventive Maintenance Inspection forms is adequate (similar to Recommendation #10 and #11).

30. SDTI should determine the extent of the backlog of maintenance entries to the Ellipse System and develop a schedule to ensure that <u>all</u> entries are properly entered into the system and tracked to closure.

24. Drug and Alcohol Policy Program

No deficiency – No recommendation.

25. Contractor Safety Program

No deficiency – No recommendation.

APPENDICES

APPENDIX A
ACRONYMS

Acronym	Meaning
APTA	American Public Transportation Association
BLUE LINE	SDTI's Operating Line of Mission San Diego Station to San Ysidro Station
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
FRA	Federal Railroad Administration
FTA	Federal Transportation Administration
GO	General Order
ISA	Internal Safety Audit
LRT	Light Rail Transit
LRV	Light Rail Vehicle
MOW	Maintenance of Way
MTDB	San Diego Metropolitan Transit Development Board
MVE	Mission Valley East
NSDCTDB	North San Diego County Transit Development Board
OCS	Overhead Catenary System
ORANGE LINE	SDTI's Operating Line of Santee Town Center to Imperial Transfer Station
PM	Preventative Maintenance
PMP	Project Management Plan
SANDAG	San Diego Association of Governments
SCP	Safety Certification Plan
SDTI	San Diego Trolley, Inc.
SOP	Standard Operating Procedure
SCIC	Security and Critical Incident Committee
SSPP	System Safety Program Plan *also* System Security Program Plan
STAFF	CPUC's Rail Transit Safety Section Staff
T/O	Train Operator

APPENDIX B
SDTI 2006 TRIENNIAL SAFETY AUDIT
CHECKLISTS INDEX

Checklist No.	Element / Characteristic	Checklist No.	Element / Characteristic
1	**Light Rail Vehicle Inspection – CPUC Inspector**	**14**	**Internal Safety Audit Program**
2	**Track and Switch Inspection – CPUC Inspector**	**15**	**Accident/Incident Reporting & Investigation**
3	**Grade Crossing Warning Devices – CPUC Inspector**	**16**	**Safety Certification Plan of the Mid-Coast Project**
4	**Traction Power Inspection – CPUC Inspector**	**17**	**Configuration Management**
5	**Overhead Contact System Maintenance**	**18**	**Hours of Service Records**
6	**Substation Maintenance**	**19**	**Transit Security**
7	**Emergency Vent Fans, Sump Pumps, Underground Phones – SDSU Underground Station Maintenance**	**20**	**Hazardous Materials Program**
8	**Wet Standpipes, Undercar Deluge Test-SDSU Underground Station Maintenance**	**21**	**Emergency Response Agency Familiarization Program**
9	**Track, Signals and Vital Relay Maintenance**	**22**	**LRV Maintenance Training Program**
10	**Track, Traction Power, & Signal Maintainer Training Program**	**23**	**Light Rail Vehicle Maintenance**
11	**Grade Crossing Equipment Maintenance**	**24**	**Drug and Alcohol Policy Program**
12	**Power Switch Maintenance**	**25**	**Contractor Safety Program**
13	**Train Operator, Line Supervisor, and Central Control Supervisor Training & Re-certification**		

APPENDIX C
SDTI 2006 TRIENNIAL SAFETY AUDIT RECOMMENDATION LIST

No.	Recommendations	Checklist No.
1	SDTI should ensure that the current visual inspection program of cow-catchers at the required interval is adequate for identifying those that are defective.	1
2	SDTI should adjust the point switch gap for Switch Nos. 11B and 15B.	2
3	SDTI should review their existing track "open" defect list and ensure that all open defects are properly labeled on the mainline as required by FRA Rules.	2
4	SDTI should survey all grade crossings with multiple track to verify if multiple track signage is currently installed. Multiple track signage should be installed at locations where necessary.	3
5	SDTI should survey all grade crossings to verify if that gate arms are 3 ft. 6 in to 4ft. 6in. from crown of roadway. Gate arm height should be adjusted at locations where necessary.	3
6	SDTI should survey the cross-bucks at all grade crossings. Faded crossbucks that are found should be replaced at locations where necessary.	3
7	SDTI should survey the entire system to identify and correct General Order 95 Rule 74.4-F violations.	4
8	SDTI should confirm that tree branches near the OCS and supporting structures are properly trimmed per General Order 95, Rule 35.	4
9	SDTI should correct the General Maintenance Issues noted in this checklist: tighten down guy, install down guy cover, trim span wire tails, inspect, clean and/or repair "Johnny Ball" type insulators.	4
10	SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms.	5
11	SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in Trouble Tickets and Preventive Maintenance Inspection forms (same as #10 above)	6
12	SDTI should modify existing SOP (Title: EVF/Jet Fan Manual Operation, Publication No. SDSU-001) in order to create preventive maintenance SOP. This SOP should include appropriate checklists and a decision on an appropriate inspection frequency for Emergency and Jet Fans.	7
13	SDTI should develop Sump Pump operation verification checklists for use by its Wayside Maintenance personnel during rainy season.	7
14	SDTI should develop a SOP for Emergency Trip System (ETS) to include	7

	testing criteria for emergency phones.	
15	SDTI should generate a Trouble Ticket for each inspected location of its track structure when needed repairs are to be performed by outside contractors. Moreover, SDTI should distinguish between comments and defects on its track structures preventive maintenance forms.	9
16	SDTI should adopt changes to verify and record that every person authorized to operate a train has a valid California Class B license with a passenger endorsement or a valid California Class C license with a current medical examination as required by General Order 143-B.	13
17	SDTI should adopt procedures to ensure that employees complete a comprehensive refresher training course appropriate to their responsibilities at least every two years.	13
18	SANDAG should implement the corrective action for Recommendation 9 of the 2003 audit to ensure that thorough configuration records and controls are in effect demonstrating that an audit trail exists, tracking the current facility or equipment configuration back to its inception; latest approved set of documents is released for construction and operations; and all completed documentation concerning changes or updates of as-built documents are kept on-file at SANDAG's Engineering offices	17
19	SDTI should take steps to preclude requiring or allowing safety sensitive employees from working beyond the hours of service limits established in General Order 143-B	18
20	SDTI should adopt hours of service record forms which clearly present covered employees' on duty time, off-duty time, and consecutive hours off duty prior to assuming on duty status to ensure compliance with the Commission's hours of service requirements.	18
21	SDTI should ensure that the SCIC meetings record in the minutes whether or not security breaches have occurred.	19
22	SDTI should adopt a method of regular scheduling of SCIC meetings or clearly establish another appropriate method to determine a minimum frequency between such committee meetings	19
23	SDTI should adopt a means to follow-up action items from the many constructive ideas and activities identified and proposed in its SCIC meetings. Action items should be included in subsequent meeting agendas.	19
24	SDTI should develop and implement a program of security training, including identifying and reporting suspicious behavior, for all SDTI employees as identified in the threat and vulnerability assessment.	19
25	SDTI should develop and implement a regular program of in-house emergency security exercises.	19
26	SDTI should complete the SCIC and President and General Manager SSPP recommendation reviews then adopt and implement the proposed changes	19

	to the System Security Program Plan.	
27	SDTI should ensure that LRV employees who are off-duty for a prolonged absence period receive re-training or re-certification prior to resuming LRV maintenance inspection tasks	22
28	SDTI should ensure that a trouble report is generated for defects found during an LRV inspection that requires replacement parts	23
29	SDTI should ensure that the current database system used for "tracking" the status of corrective actions taken on defects noted in the Trouble Tickets and Preventive Maintenance Inspection forms is adequate (similar to Recommendation #10 and #11).	23
30	SDTI should determine the extent of the backlog of maintenance entries to the Ellipse System and develop a schedule to ensure that all entries are properly entered into the system and tracked to closure.	23

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**1**	Persons Contacted
Date of Audit	**03/20/06**	**Andy Goddard – LRV Supervisor**
Auditors	**Don Miller** **Joey Bigornia**	
Department	**Light Rail Vehicle Maintenance**	

REFERENCE CRITERIA

1. CPUC GO 143-B Section 14.04-Light-Rail Vehicle Maintenance Practices and Records
2. San Diego Trolley, Inc. System Safety Program Plan, December 2005, Section 5.2.2 LRV Scheduled Maintenance.
3. SDTI LRV SOP's E-2002 Daily Inspection, E-2003 6-Month Oil Inspection, E-2004 7.5 K Inspection, E-2005 22.5K Inspection, E-2006 1-Year Inspection.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

LIGHT RAIL VEHICLE INSPECTION – CPUC INSPECTOR

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

1. Review and evaluate the adequacy of SDTI's Light Rail Vehicle Inspection and Maintenance programs.
2. Randomly select at least two U2-models (Car nos. 1001-1071), two SD-100 models (Car nos. 2001-2052) and two S70 models (Car nos. 3000-3011) and perform detailed inspections to determine if SDTI is properly and adequately maintaining:
   a. Traction motors
   b. Truck, axle, wheel components
   c. Brake systems – friction, dynamic, and track
   d. Doors and pantograph assemblies
   e. Coupling and drawbar mechanisms
   f. Passenger compartment/safety appliances
   g. Operator cab/appurtenance
3. Based on the review and the inspections, determine whether or not the selected LRV's are in compliance with the applicable reference criteria.

RESULTS/COMMENTS

Findings:

1. Daily Inspections
   Staff observed SDTI perform a Daily Inspection of U2-Model Car No. 1016, SD-100 Model Car No. 2052 and S-70 Model Car No. 3001 to confirm that any defects found by SDTI's LRV Maintainer were properly noted on the Daily Inspection form. There were no exceptions noted for the observed Daily Inspections of the 3 vehicles.

2. 7.5K Inspections

Staff observed SDTI perform the 7.5K Inspection for SD-100 Model Car Nos. 2039 and 2042 to confirm that any defects found by SDTI's LRV Maintainer were properly noted on the 7.5K Inspection form. The only exception noted during the observation not captured during the inspection was one cow-catcher on Car No. 2039 and one cow-catcher on Car No. 2042 needed to be replaced.

3. Random Inspections

Staff performed an under-car inspection of U2 Model Car No. 1064 and S70 Model Car No. 3008 which were ready for service. The only exception noted during the inspection was one cow-catcher on Car No. 1064 needed to be replaced.

4. Trouble Reports

Staff reviewed the Trouble Reports dated January – March 2006 for Car Nos. 1064, 2039 and 2042. Staff confirmed that "Trouble Reports" were addressed by SDTI LRV Maintainer, properly documented, and closed out. There were no exceptions noted.

Recommendation:

SDTI should ensure that the current visual inspection program of cow-catchers at the required interval is adequate for identifying those that are defective.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**2**	Persons Contacted
Date of Audit	**3/6/04**	**Ricardo Medina – Track Supervisor**
Auditors	**Eddie Damron (track)** **Joey Bigornia** **Claudia Lam**	
Department	**Wayside**	

REFERENCE CRITERIA

1. Code of Federal Regulations CFR 49, Part 213-Track Safety Standards
2. GO 143-B, Section 14.05-Track Maintenance Practices and Records
3. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRACK AND SWITCH INSPECTIONS – CPUC INSPECTORS

Utilizing the services of CPUC/FRA qualified inspectors from the Commission's Railroad Safety Branch:

1. Review and evaluate the adequacy of SDTI's track and signal inspection and maintenance programs and standards.
2. Randomly select at least two sections of the mainline track and two turnout / diamond crossings on the Blue Line, Green Line, and Orange Line and perform visual & dimensional inspections / 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.

RESULTS/COMMENTS

Findings:

A. Track Inspection

1. Staff performed a visual track inspection of the Blue Line on-board the train for the right-of-way between Imperial Transfer Station and 24 Street Station. Staff found an existing defect at Milepost 5.25, eastbound track that was not properly labeled as required by FRA Rules.

2. Staff performed a visual track inspection of the Green Line & Orange Line on-board the train for the right-of-way between Old Town Transportation Center Station and Santee Town Center Station. No exceptions were noted for the Green Line and Orange Line track inspection.

B. Turnout and Switch Inspection

1. Turnout with the associated switches were inspected on the Blue Line
   (A) Switch 95A
   (B) Switch 95B
   (C) Switch 91A

(D) Switch 91B
(E) Switch 49
(F) Switch 11A
(G) Switch 11B
(H) Switch 15A
(I) Switch 15B

The results of the turnout and switch inspection show that an adjustment is needed to the switch point gaps for Switch Nos. 11B and 15B.

No other exceptions were noted for the other switches that were inspected, they were within the acceptable limits for FRA Track Safety Standards, 49 CFR Part 213, Class 3 track.

2. Turnout with the associated switches were inspected on the Green Line
   (A) Switch 01A
   (B) Switch 01B
   (C) Switch 03A
   (D) Switch 03B

   No other exceptions were noted for switches inspected, they were within the acceptable limits for FRA Track Safety Standards, 49 CFR Part 213, Class 3 track.

3. Turnout with the associated switches were inspected on the Orange Line
   (A) Switch E19A
   (B) Switch E19B
   (C) Switch E343

   No exceptions were noted for the switches inspected, they were within the acceptable limits for FTA Track Safety Standards, 49 CFR Part 213, Class 3 track.

Recommendations:

1. SDTI should adjust the point switch point gaps for Switch Nos. 11B and 15B. The inspection frequency should be increased to ensure that the point gaps are within the acceptable limits for FRA Track Safety Standards, 49 CFR Part 213, Class 3 track.
2. SDTI should review their existing track "open" defect list and ensure that all open defects are properly labeled on the mainline as required by FRA Rules.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**3**	Persons Contacted
Date of Audit	**03/21-22/06**	**Fred Byle – Superintendent of Wayside** **Joe Petito – Assistant Superintendent of Wayside**
Auditors	**Gerald Muffley** **Joey Bigornia**	
Department	**Wayside**	

REFERENCE CRITERIA

1. Code of Federal Regulations CFR 49, Part 234-Grade Crossing Signal System Safety
2. Code of Federal Regulations CFR 49, Part 236 – Rules, Standards, & Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems Devices and Appliances
3. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance
4. SDTI SOP SIG-2001, Signal System, Switch and Grade Crossing Tests and Standards, dated 6/18/2003

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

GATED GRADE CROSSINGS WARNING DEVICES – CPUC INSPECTOR

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

1. Review and evaluate the adequacy of SDTI's Crossing Gate Preventive Maintenance programs and standards.
2. Randomly select at least five gated crossings on the Blue Line, Orange Line and Green Line and perform detailed inspections to determine whether or not the selected crossings are in compliance with the applicable reference criteria.

RESULTS/COMMENTS

Findings:

A. Metro Blue Line

Grade Crossings inspected by PUC staff were:
(1) Iris Avenue
(2) Palm Avenue
(3) Anita Street
(4) Palomar Street
(5) Naples Street

Exceptions noted for the Blue Line grade crossing inspection are:

1. Anita Street needs multiple track signage.
2. Palomar Street needs multiple track signage.
3. Palomar Street cross-bucks (which are faded) need to be replaced.
4. Palomar Street gate (standard 9-A) is too low. Gate arm should be 3 ft. 6 in – 4ft 6 in from crown of roadway.
5. Naples Street needs multiple track signage.
6. Naples Street cross-bucks (which are faded) need to be replaced.

B. Metro Orange Line

Grade Crossings inspected by PUC staff were:
(1) Interstate 8 freeway off-ramp / Spring Street
(2) University Avenue
(3) Allison Avenue
(4) La Mesa Blvd.
(5) Lemon Avenue

The only exceptions noted for the Orange Line grade crossing inspection are:

1. Allison Avenue gate (standard 9-A) is too low. Gate arm should be 3 ft. 6 in – 4ft 6 in from crown of roadway.

C. Metro Green Line

Grade Crossings inspected by PUC staff were:
(1) Ash Street
(2) Beech Street
(3) Cedar Street
(4) Palm Street
(5) Front Street

No exceptions were noted during the Green Line grade crossing inspection.

Recommendation:

1. SDTI should survey all grade crossings with multiple tracks to verify if multiple track signage is currently installed. Multiple track signage should be installed at locations where necessary.
2. SDTI should survey all grade crossings to verify that gate arms are 3 ft. 6 in to 4 ft. 6 in. from crown of roadway. Gate arm height should be adjusted at locations where necessary.
3. SDTI should survey the crossbucks at all grade crossings. Faded crossbucks that are found should be replaced at locations where necessary.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**4**	Persons Contacted
Date of Audit	**03/23 – 03/24/06** **03/28 – 03/29/06**	**Fred Byle – Superintendent of Wayside Maintenance** **Joe Petito – Assistant Superintendent of Wayside Maintenance** **Bret Vaughn – Supervisor Wayside Maintenance**
Auditors	**Brian Yu**	
Department	**Wayside**	

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. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance
4. SDTI SOP CAT-101, Annual Catenary Inspection Procedure, dated 1/7/05
5. SDTI Substation Inspection, Quarterly Inspection Procedure, dated 1/7/05

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRACTION POWER INSPECTION – CPUC INSPECTOR

Utilizing the services of a CPUC qualified General Order 95 inspector(s):

1. Review and evaluate the adequacy of SDTI'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 Blue Line, Orange Line and Green Line and perform detailed inspections to determine whether or not the selected OCS sections and TPSS are in compliance with the applicable reference criteria.

RESULTS/COMMENTS

Findings:

1. Traction Power Substations inspected

A. Blue Line
   1. Dairy Mart Road
   2. L Street

B. Green Line
   1. Airport Vista
   2. Linda Vista

C. Orange Line
   1. NEBO
   2. Front Street

The Inspection Log available at each substation showed the date of last inspection and name of Maintainer that performed the task. No exceptions were noted on any of the Traction Power Substations inspected.

2. OCS Wire Height inspections

Where measured, OCS wire heights were in compliance with General Order 95 requirements.

A. Blue Line
   1. West Park Crossing WB – 22 feet 0.5 inches, EB – 22 feet 1.5 inches
   2. Palm Avenue Crossing WB – 22 feet 1.75 inches, EB – 22 feet 1.75 inches
   3. Union Street County Court House under Pedestrian Bridge WB – 14 feet 10 inches, EB – 14 feet 11 inches
   4. C Street and First Avenue Crossing WB – 19 feet 4.75 inches, EB – 19 feet 4.75 inches
   5. C Street and 7th Avenue Crossing WB – 19 feet 6 inches, EB – 19 feet 6 inches

B. Green Line
   1. Santee Crossing at Mile Post 20.25 – 19 feet 9 inches (single track)
   2. Santee Crossing at Pier 1 Imports – 20 feet 0.25 inches (single track)
   3. Chemtronix Parking Lot (CPUC Crossing #36D-17.34) WB – 21 feet 9.75 inches, EB – 21 feet 9.25 inches
   4. Between 3rd and 4th poles West of Bradley Crossing WB – 22 feet 5.75 inches, EB – 22 feet 5.25 inches
   5. Vernon Crossing WB – 22 feet 4.75 inches, EB – 22 feet 4.25 inches
   6. Lemon and Spring Crossing (CPUC Crossing #36D-12.22) WB – 22 feet 2 inches, EB – 22 feet 1 inches

C. Orange Line
   1. Taylor Street Crossing WB – 19 feet 11.5 inches, EB – 19 feet 6.5 inches
   2. Front Street Crossing WB – 21 feet 7.5 inches, EB 21 feet 8 inches
   3. Market Street Crossing WB – 19 feet 8 inches, EB – 19 feet 3 inches

The wire heights measured at each location were acceptable. No exceptions were noted.

3. General Order 95 Rule 74.4F Violations

The following locations are non-compliant with GO 95 Rule 74.4F

A. Blue Line
   1. Seaward Avenue Crossing MP 14.00 over Switch Point 91A on WB Track – Out of running Messenger and Contact wires were not properly supported for compliance
   2. West Park Avenue Crossing on WB Track – Out of running Messenger and Contact Wires terminating to Balance Weight Pole #47 were not properly supported for compliance.
   3. Right of Way near MP 13.00 – Out of Running Messenger and Contact Wires terminating to the first pole (fixed termination) across the track from Pole #51 were not properly supported for compliance.
   4. Right of Way near MP 13.00 – Out of Running Messenger and Contact Wires terminating to the Balance Weight Pole #51 were not properly supported for compliance.
   5. Right of Way near MP 13.00 – Out of Running Messenger and Contact Wires terminating to the Balance Weight Pole #52 were not properly supported for compliance.
   6. Palm Avenue Crossing – Mid Point Anchors on WB and EB Tracks were not properly supported for compliance.
   7. Right of Way near Palm Avenue Station – Out of Running Messenger and Contact Wires terminating to the Balance Weight Pole #61 were not properly supported for compliance.
   8. Right of Way near Palm Avenue Station –Out of Running Messenger and Contact Wires terminating to the Balance Weight Pole #60 were not properly supported for compliance.

9. Columbia Street – Out of Running Contact Wire at Columbia Street Crossover on WB Track was not properly supported for compliance.
10. State Street – Out of Running Contact Wire at State Street Crossover on EB Track was not properly supported for compliance.
11. State Street – Out of Running Contact Wire on EB Track at East side of C and State Street Crossing was not properly supported to be compliant with Rule 74.4F.
12. Union Street – Out of Running Contact Wire on WB Track at West side of C and Union Street Crossing was not properly supported for compliance.

B. Green Line
   1. Santee Town Center
      a. Out of Running Messenger and Contact Wire terminating to a Balance Weight Pole next to the Santee Mall Unit 9836D were not properly supported for compliance.
      b. Out of Running Messenger and Contact Wire terminating to a Balance Weight Pole next to the Santee Mall Unit 9832A were not properly supported for compliance.
      c. Out of Running Messenger and Contact Wire terminating to a Balance Weight Pole next to the Olive Garden Restaurant at Santee Center were not properly supported for compliance.

   2. Buena Vista / Cuyamaca
      a. Out of Running Messenger and Contact Wire terminating to a fixed terminating pole on the West side of Buena Vista and Cuyamaca Crossing were not properly supported for compliance.

   3. Chemtronix Parking Lot
      a. Mid Point Anchor at Chemtronix Parking Lot Pedestrian Crossing was not properly supported for compliance.

   4. Bradley Avenue
      a. Out of Running Contact Wire terminating to a Fixed Termination Pole south of Bradley Crossing was not properly supported for compliance.

   5. Vernon Avenue
      a. Out of Running Messenger and Contact Wire, over Switch E31A, terminating to a Balance Weight Pole (one pole east of Vernon Crossing), were not properly supported for compliance.
      b. Out of Running Messenger and Contact Wire terminating to Balance Weight Poles on west of Vernon Crossing were not properly supported for compliance.

C. Orange Line
   1. Right of way east of Spring Street
      a. Mid Point Anchors on WB/EB at Mile Post 12.25 were not properly supported for compliance.
      b. Out of Running Messenger and Contact Wires terminating to Balance Weight Poles (on both sides of Track) adjacent to Finley Avenue (next to Signal Case 1209RC) were not properly for compliance.
      c. Out of Running Messenger and Contact Wire terminating to Balance Weight Poles (on both sides of track) adjacent to NEBO Substation were not properly supported for compliance.

   2. Taylor Street / Old Town Transit Center
      a. Out of Running Messenger and Contact Wire terminating to Balance Weight Poles (3 locations) adjacent to Signal Case 06LA were not properly supported for compliance.

b. Out of Running Messenger and Contact Wire terminating to Balance Weight Poles (2 locations) north of Signal Case 06LA were not properly supported for compliance.

3. Harbor Drive (right-of-way)
   a. Out of Running Messenger and Contact Wire terminating to a Fixed Termination Pole (1st Pole south of MP .50) on EB track side were not properly supported for compliance.
   b. Out of Running Messenger and Contact Wire terminating to a Fixed Termination Pole (2nd Pole south of MP .50) on EB track side were not properly supported for compliance.
   c. Out of Running Messenger and Contact Wire terminating to a Fixed Termination Pole (3rd Pole south of MP .50) on EB track side were not properly supported for compliance.
   d. Out of Running Messenger and Contact Wire terminating to a Fixed Termination Pole (4th Pole south of MP .50) on EB track side were not properly supported for compliance.

4. OCS Clearance Violations – Tree Trimming, GO 95 Rule 35

The following locations require tree trimming.

1. Span Wire terminating to the First Pole on east of C and First Street Crossing on EB Track – tree branches are rubbing against the Span Wire. (Blue Line / Orange Line)
2. Span Wire terminating to a Pole just behind the Civic Center Station canopy – tree branches are rubbing against the Span Wire. (Blue Line / Orange Line)
3. Several other locations along the C Street corridor – tree branches are rubbing against Span Wire or getting near. (Blue Line / Orange Line)
4. Palm fronds near Balance Weight Pole on the EB track at Finley and Nebo Streets were too close to the "energized" Messenger and Contact Wires. (Orange Line)

5. General Maintenance Issues

The following locations require general maintenance repair.

1. Down Guy attached to a Pole on the EB track side of the Mile Post 13.00 (Blue Line) – Down Guy needs to be tightened.
2. Down Guy attached to a Pole next to Signal Case 1209RC (Pole has "Air Gap" sign on it – Orange Line) – Guy Guard is needed.
3. Other than the Balance Weight Poles, SDTI OCS Poles lack a numbering system, thus making it harder for an inspector to identify a precise location of findings – OCS Poles need to be numbered.
4. Overhead Spans around Seaport Village Station (Orange Line) – Span Wire tails need to be trimmed.
5. "Johnny Ball" Insulators on Span Wires along the Harbor Boulevard (Orange Line) showed rust stains – Inspect, clean and/or repair the connections.

Recommendations:

1. SDTI should survey the entire system to identify and correct the General Order 95 Rule 74.4F violations.
2. SDTI should make sure tree branches near the OCS and supporting structures are properly trimmed per General Order 95 Rule 35.
3. SDTI should correct the General Maintenance Issues noted in this checklist: tighten down guys, install down guy cover, numbering OCS Poles, trimming span wire tails, inspect, clean and/or repair "Johnny Balls."

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**5**	Persons Contacted
Date of Audit	**04/18/06**	**Fred Byle – Superintendent of Wayside Maintenance** **Joe Petito – Assistant Superintendent of Wayside Maintenance**
Auditors	**Brian Yu**	
Department	**Wayside**	

REFERENCE CRITERIA

1. GO 143-B, Section 14.06-Traction Power System Inspections and Records
2. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Scheduled Maintenance
3. SDTI SOP CAT-101.0 Annual Catenary Inspection Procedure dated 1/07/05

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

OVERHEAD CONTACT SYSTEM INSPECTIONS AND RECORDS

Review the records of completed Overhead Contact System (OCS) inspections prepared 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
3. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Findings:

1. SDTI Annual OCS Inspection records dated 2003 - 2006 were reviewed.
2. Defects noted on the Annual Inspection forms were corrected immediately during the inspections.
3. Some defects noted on the Annual Inspection forms that could not be addressed immediately, and do not impact the revenue service operation, were listed on the Trouble Ticket (several on 2003 records).
4. Several 2005 Annual Inspections had defects noted; however the corrective actions status was left blank and the Wayside Department did not have a method to verify the status of corrective actions.
5. Annual Inspection records are tracked manually.
6. 2003 Orange Line and 2004 Blue Line Inspection records were unorganized for review.

Recommendation:

SDTI should develop a "tracking method" to verify the status of the corrective actions taken on defects noted in the Trouble Tickets and Preventive Maintenance Inspection forms.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**6**	Persons Contacted
Date of Audit	**04/17/06**	**Fred Byle – Superintendent of Wayside Maintenance**
Auditors	**Brian Yu**	
Department	**Wayside**	

REFERENCE CRITERIA

1. GO 143-B, Section 14.06-Traction Power System Inspections and Records
2. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Scheduled Maintenance
3. SDTI SOP SUB-STA- 2.0 Substation Maintenance Inspection Procedure, dated 4/30/05

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SUBSTATION INSPECTIONS AND RECORDS

Randomly select at least four substations and review the records of completed substation inspections 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
3. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Findings:

1. Dairy Mart (TPSS 12), 24th Street (TPSS 6A), Pacifica (TPSS 20), and Front Street (TPSS C4A) Traction Power Substation (TPSS) maintenance records dated 2003 - 2006 were reviewed.
2. Wayside Department performs Quarterly TPSS Inspections based on the TPSS manufacturer's recommendation.
3. Problems identified during the Quarterly Inspection result in a Trouble Ticket being generated.
4. Wayside Department currently tracks the Total/Open/Closed status of Trouble Tickets semi-manually (MS Access and Excel for Total and Closed Trouble Tickets, and manual tracking for open Trouble Tickets).
5. For minor maintenance activities that do not require considerable amount of resource, the maintenance activity is recorded on the Quarterly Inspection Form and no Trouble Ticket is generated.
6. Trouble Ticket can also be generated by a trouble report.
7. Trouble reports are generated normally by the Central Control who monitors the TPSS status remotely. Also, any Wayside lineman or a train operator who notices any signs of TPSS trouble notifies the Central Control to generate the trouble report.
8. Most of the Trouble Ticket items are addressed immediately (within 24 hours).
9. Some Trouble Ticket items, those that require replacement parts that need to be ordered, may take a longer time to address the issue.
10. Trouble Ticket folders reviewed by Staff contained only the "closed" Trouble Tickets.

11. "Open" Trouble Tickets are tracked (manually) by the Line Supervisor.
12. If an "open" Trouble Ticket is mishandled, there is a potential for it to be lost.
13. Some Quarterly Inspection Forms indicated a Trouble Ticket being generated; however Staff could not find the corresponding Trouble Ticket in the "closed" Trouble Ticket folder.
14. Some Trouble Tickets generated by the Quarterly Inspections were hard to find since there were no reference (or tracking method) between the two other than the dates.
    For example:
    - TPSS 20 (Pacifica) – Quarterly Inspection sheets dated 2/27/06, 11/17/05, 2/9/04, and 11/24/03 were marked "N/C" meaning "need correction." I found only one Trouble Ticket (dated 2/9/04) from file.
    - TPSS 6A (24th Street) – Quarterly Inspection sheets dated 2/2/06 and 8/28/03 were marked "N/C" meaning "need correction." I did not find any Trouble Ticket generated by these two Quarterly Inspections.
15. If a Trouble Ticket generated by the Quarterly Inspection were lost, there is no method to verify the maintenance work had been done.
16. If Trouble Tickets are not tracked, there is a chance of a redundant Trouble Ticket being generated thus wasting resources.

Recommendation:

SDTI should develop a "tracking method" to verify the status of the corrective actions taken on the defects noted in the Trouble Tickets and Preventive Maintenance Inspection forms.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**7**	Persons Contacted
Date of Audit	**04/18/06**	**Fred Byle, Superintendent of Wayside Maintenance** **Joe Petito, Assistant Superintendent of Wayside Maintenance**
Auditors	**Raed Dwairi**	
Department	**Wayside**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

EMERGENCY VENT FANS, SUMP PUMPS, and UNDERGROUND PHONES

1. Interview the department representative to determine if formal procedures for preventative maintenance, inspection and testing programs have been properly developed and implemented for the following items:
    a) Emergency Vent Fans
    b) Sump Pumps
    c) Underground Phones
2. Confirm that the above listed items was inspected and adjusted at the required frequencies as specified in the reference criteria for the past 12-months
3. Determine if the required PM activities were properly documented
4. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Findings:

1. Wayside Maintenance Department demonstrated the operation of two randomly selected Emergency Ventilation Fans and their associated dampers for staff.

2. Staff visually inspected a Sump Pump at the Mechanical Room at San Diego State University (SDSU) Station

3. The Wayside Maintenance Department utilizes a Standard Operating Procedure (SOP #SDSU-001) to assure the safe operation of its four Emergency Ventilations Fans (EVF) and eight Jet Fans (JF). These are located at tunnel segments east and west, east and west bound tracks, including SDSU Station Platform and Mezzanine.

4. Testing of EVF and JF equipment is conducted on a 60-day cycle with the intention to change to a 90-day cycle.

5. Actual operation of the two EVF's and their associated dampers that are located in the west equipment

room (EVF-1 and EVF-2) in both the exhaust (removing air from the tunnel and discharging it to the outside atmosphere) and supply modes (forcing outside air into the tunnel) showed their proper and precise operation.

6. SOP SDSU-001 can easily be modified to create a preventive maintenance (PM) SOP for EVF's and JF's complete with appropriate checklists and an identification of appropriate PM frequencies.

7. Wayside Maintenance uses outside contractors to perform Sump Pump maintenance. The department does not currently have a Sump Pump operation verification checklist for use by its personnel.

8. Sump Pump inspection and maintenance records were on file for 2004, however, only an invoice dated 4/8/05 from Fuller Inc., without a corresponding inspection record, was found for inspections and repairs of Sump Pumps in 2005.

9. No SOP currently exists for Emergency Trip System (ETS), although there is an appropriate quarterly inspection Form for SDSU/Tunnel ETS.

Recommendations:

1. SDTI should modify existing SOP (Titled EVF/Jet Fan Manual Operation, Publication No. SDSU-001) in order to create a preventive maintenance SOP. This SOP should include appropriate checklists and a decision on an appropriate inspection frequency for Emergency Ventilation and Jet Fans.
2. SDTI should develop Sump Pump operation verification checklists for use by its Wayside Maintenance personnel during rainy season.
3. SDTI should develop a SOP for Emergency Trip System (ETS) to include testing criteria for emergency phones.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**8**	Persons Contacted
Date of Audit	**04/19/06**	**Fred Byle, Superintendent of Wayside Maintenance** **Joe Petito, Assistant Superintendent of Wayside Maintenance**
Auditors	**Raed Dwairi**	
Department	**Wayside**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance.
2. NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

WET STANDPIPES and UNDERCAR DELUGE TESTS

1. Interview the department representative to determine if formal procedures for preventative maintenance, inspection and testing programs have been properly developed and implemented for the following items:
    a) Wet Standpipes
    b) Underground Deluge Tests
2. Confirm that the above listed items was inspected and adjusted at the required frequencies as specified in the reference criteria for the past 12-months
3. Determine if the required PM activities were properly documented
4. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Findings:

1. SDTI complies with National Fire Protection Agency (NFPA) Title 25 Standard for the Inspection, Testing, and Maintenance of Water-based Fire Protection System. A Certificate of Occupancy issued to SDTI indicates they have met all the requirements of the State Fire Marshal.

2. Maintenance inspections are performed by an outside contractor (Tri-Signal Inc.) to ensure SDTI is compliant with NFPA Title 25 requirements. The inspection entails checking monitoring system which includes smoke detection, service panel, and reporting devices that are attached to standpipes (including valves, pressure and float switches).

3. SDTI is given a copy of the Tri-Signal Inc. inspection results. The inspection records are kept on-file at the Wayside office. Inspection records are available from July 2005 (Opening of Mission Valley East extension) to present. No exceptions were noted.

Recommendation:

None

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**9**	Persons Contacted
Date of Audit	**04/20/06**	**Fred Byle, Superintendent of Wayside Maintenance** **Joe Petito, Assistant Superintendent of Wayside Maintenance** **Ricardo Medina, Track Supervisor**
Auditors	**Raed Dwairi**	
Department	**Wayside**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance
2. SDTI SOP SIG-2001 Signal System, Switch and Grade Crossing Tests and Standard dated 6/18/03

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRACK, SWITCHES AND VITAL RELAYS MAINTENANCE

Randomly select at least four items of each category (Track, Switches, and Vital Relays) and review the records of completed inspections prepared during the last four years to determine whether or not:

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

RESULTS/COMMENTS

Findings:

1. Switch Inspection Records
   Inspection and repair records dated 2004 – 2005 were reviewed for the following switches:
   a. 21A
   b. 21B
   c. 51A
   d. 51B
   e. 356A
   f. 356B

   All randomly selected switches were inspected at the required frequencies and noted defects corrected in a timely manner. No exceptions were noted.

2. Vital Relay inspection and repair records for the years 2002 and 2004 (inspected once every two years) were reviewed for Vital Relay s/n B4502274. The vital relay passed the required tests and the inspection form was stamped "COMPLETED".

3. Vital relays were inspected at the required frequencies. Those that failed the test were replaced in a timely manner.

4. Track inspection and repair records dated 2004 -2006 were reviewed for the following locations:
   a. South Line – Group D, B, C

b. East Line – Group D, B, A, C
c. Old Town / MVW – Group B
d. Center City / Old Town Line – Group B
e. Mission Valley Line – Group A
f. Bayside Line – Group A

All inspections were performed at the required frequencies and noted defects corrected in a timely manner.

5. While switch inspection forms clearly differentiate FRA defects from others, they do not do so for defects that are to be repaired by outside contractors particularly when repairs are to be performed because of comments such as a "chipped point". The department pays special attention to FRA defects since the inspection forms require the maintainer to write down a description of the defect, its code, its location, and its details. It also requires, on the same form, a description of the corrective action, its code, date corrected, action taken, and the responsible person for closing out this corrective action.

6. No derailments were caused by track conditions.

7. The last Ultrasonic Testing on the track was performed on 12/17/04.

Comment:

Record keeping and maintenance practices at Wayside Department have noticeably improved since previous CPUC Year 2003 audit.

Recommendation:

SDTI should generate a Trouble Ticket for each inspected location of its track structure when needed repairs are to be performed by outside contractors. Moreover, SDTI should distinguish between comments and defects on its track structures preventive maintenance forms.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**10**	Persons Contacted
Date of Audit	**4/21/06**	**Fred Byle – Superintendent of Wayside Maintenance**
Auditors	**Anton Garabetian**	**Joe Petito – Assistant Superintendent of Wayside Maintenance**
Department	**Wayside**	**Ricardo Medina – Track Supervisor**

REFERENCE CRITERIA

1. GO 143-B, Section 12.01-Safety Sensitive Employees, dated 1/20/00.
2. GO 143-B, Section 13.03-Program of Instruction, dated 1/20/00.
3. SDTI System Safety Program Plan, December 2005, Section 5.3.1.1 Wayside Department Training.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRACK MAINTAINER, TRACTION POWER MAINTAINER, AND SIGNAL MAINTAINER TRAINING PROGRAM

Randomly select the names of at least three persons in the classification of (1) Track Maintainer, (2) Traction Power Maintainer and (3) Signal Maintainer and review their training and certification records for a minimum of the past 2-years and to determine whether or not:

1. The maintainer has received the required training to perform inspections.
2. Documents are on-file to show that the maintainer is qualified to perform the inspections.
3. The maintainer has been re certified at the required frequency.

RESULTS/COMMENTS

Findings:

1. The SDTI Roadway Worker Protection certification records of three Track Maintainer and five Wayside Maintainers were reviewed.

2. Records of the following Track Maintainers were reviewed:

    a. Marina Garcia
        1. Certified on 5/24/04 and re-certified on 8/24/05. Next recertification is due 8/2006.

    b. Jose Flores
        1. Certified on 5/24/04 and re-certified on 8/9/05. Next re-certification is due 8/2006.

    c. Gustavo Alftredo Ramirez
        1. Certified on 8/7/04 and re-certfied on 8/7/05. Next re-certification is due 8/2006.

3. Records of the following Wayside Maintainers were reviewed:

    a. Shawn Graham
        1. Certified on 5/25/04 and re-certified on 8/11/05. Next recertification is due 8/2006.

b. Lee Ross
    1. Certified on 5/24/04 and re-certified on 8/11/05. Next re-certification is due 8/2006.

c. Raul Rico Jr.
    1. Certified on 5/24/04 and re-certified on 8/16/05. Next re-certification is due 8/2006.

d. Tunya Kaneakula
    1. Certified on 5/19/04 and re-certified on 8/10/05. Next recertification is due 8/2006.

e. David Orozco
    1. Certified on 8/11/05 as a "new hire". Next re-certification is due 8/2006.

Comments:

The SDTI Roadway Worker Protection program is satisfactory. The Program meets the GO 143-B minimum requirements for re-certification of maintainers every two years. SDTI certifies the maintainers every year.

Recommendation:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**11**	Persons Contacted
Date of Audit	**4/20/06**	**Joe Petito – Assistant Superintendent of Wayside Maintenance**
Auditors	**Anton Garabetian**	
Department	**Wayside**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005,
2. Code of Federal Regulations CFR 49, Part 234-Grade Crossing Standards
3. GO 143-B, Section 14.05-Track Maintenance Practices and Records
4. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Schedule Maintenance
5. SDTI SOP SIG-2001 Signal System, Switch and Grade Crossing Tests and Standard dated 6/18/03

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

GRADE CROSSINGS EQUIPMENT MAINTENANCE

Randomly select at least five gated grade crossings on the Blue Line, Green Line, and Orange Line and review the records of completed gated grade crossing equipment inspections prepared during the last 12-months to determine whether or not:

1. The grade crossing equipment inspections were performed at the required frequency
2. Inspections were properly documented
3. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Findings:

1. The grade crossing equipment inspections are based on Federal Railroad Administration (FRA) CFR Part 234 standards and SDTI Signal System, Switch and Grade Crossing Tests and Standard.

2. Grade crossing equipment inspection records for the following were reviewed
   a. Blue Line Grade Crossings
      1. 8th Street dated March 2005 -April 2006
      2. Civic Center dated February 2005 - February 2006
      3. E Street dated February 2005 - March 2006
      4. F Street dated February 2005 - March 2006
      5. H Street dated March 2005 - March 2006

   b. Green Line Grade Crossings
      1. Taylor Street dated April 2005 - April 2006

2. 70th Street date July 2005 - March 2006
3. Friars Road dated March 2005 - March 2006
4. Hazard Center Drive M-2 dated April 2005 - April 2006
5. Hazard Center Drive M-3 dated March 2005 - April 2006

c. Orange Line Grade Crossings
1. 43rd Street dated April 2005 - April 2006
2. Euclid Avenue dated March 2005 - April 2006
3. Merlin Drive dated April 2005 - April 2006
4. 62nd Street dated February 2005 - April 2006
5. 65th Street dated April 2005 - March 2006

3. SDTI inspects grade crossing equipment monthly, quarterly and annually per SDTI standards.

4. All grade crossing equipment monthly, quarterly and annually inspections are properly documented. The records included the maintainer and supervisor signatures. When the inspector notices a defect, he/she issues a trouble ticket. Trouble tickets from Blue Line, Orange Line and Green Line were randomly reviewed. No exceptions were noted.

Comments:

Overall, the SDTI's performance of grade crossing equipment inspection is satisfactory. SDTI inspects the grade crossing equipment at the required frequency. Inspections are properly documented and noted grade crossing equipment defects are documented and corrected in a timely manner. The records are well organized and readily available for review.

Recommendations:

None

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**12**	Persons Contacted
Date of Audit	**04/20/06**	**Joe Petito – Assistant Superintendent of Wayside Maintenance**
Auditors	**Anton Garabetian**	
Department	**Wayside**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 5.3.1.3 Wayside Scheduled Maintenance
2. SDTI SOP SIG-2001 Signal System, Switch and Grade Crossing Tests and Standard, Section 2.2 Power Switch, dated 6/18/03

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

POWER SWITCH MAINTENANCE

Review at least three power switch inspection records from the Blue Line, Green Line, and Orange Line and review the records of completed inspections prepared during the last four years to determine whether or not:

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

RESULTS/COMMENTS

Findings:

1. The SDTI power switch monthly, quarterly and annually inspections are based on Federal Railroad Administration (FRA) 49 CFR Part 236 Rules and SDTI Signal System, Switch and Grade Crossing Tests and Standard.
2. Power Switch Inspection records for the following were reviewed
    a. Blue Line
        1. No. S91A dated January 2004 - April 2006
        2. No. 35A dated January 2004 - April 2006
        3. No. E33A dated January 2004 - April 2006

    b. Green Line
        1. No. 01A dated January 2004- April 2006
        2. No. M13B from January 2004 - April 2006
        3. No. M17A from January 2004 - April 2006

    c. Orange Line
        1. No. E5A dated January 2004 - April 2006
        2. No. E13A dated January 2004 - March 2006

3. E33A dated January 2004 - April 2006

3. SDTI inspects power switches monthly, quarterly and annually per SDTI standards. The records included the maintainer and supervisor signatures. All power switch monthly, quarterly and annually inspections are properly documented. When the inspector notices a defect, he/she issues a trouble ticket. Trouble tickets from Blue Line, Orange Line and Green Line were randomly reviewed. No exceptions were noted.

Comments:

Overall, the SDTI's performance of power switch inspection is satisfactory. SDTI inspects power switches at the required frequency. Inspections are properly documented, noted power switch defects are documented and corrected in a timely manner. The records are well organized and readily available for review.

Recommendation:

None

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**13**	Persons Contacted
Date of Audit	**4/19/06**	**Tom Tupta – Superintendent of Transportation** **Mary Jane Greenland – Human Resources Manager**
Auditors	**Gary Rosenthal**	
Department	**Transportation**	

REFERENCE CRITERIA

1. GO 143-B, Section 12.02-Driver's License, Section 13.03 Program of Instruction, dated 1/20/00.
2. SDTI System Safety Program Plan, December 2005, Section 5.1.4 Transportation Department Training.
3. SDTI Train Operator Re-certification Program dated 7/05.
4. SDTI Line/Yard Supervisor Re-certification Program dated 7/05.
5. SDTI Controller Re-certification Program dated 7/05 .

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRAIN OPERATOR, CENTRAL CONTROL SUPERVISOR, LINE SUPERVISOR, AND YARD SUPERVISOR TRAINING & RECERTIFICATION PROGRAM

Randomly select the names of at least five persons in the classification of (1) Train Operator, (2) Central Control Supervisor, (3) Line Supervisor and (4) Yard Supervisor and review their training and certification records for a minimum of the past 2-years and to determine whether or not:

1. The person has a current driver's license to operate.
2. The person has completed the required 320-hour initial training program.
3. The person has been certified every two years at the required frequency.

RESULTS/COMMENTS

Findings:

1. Since the 2003 safety audit, SDTI has adopted minimum training and certification criteria into its Controller and Line/Yard Supervisor recertification programs. The program manuals now include statements concerning purpose, scope, goals, objectives, schedules, and testing, etc. The manuals do not include identification of the issuing authority and issuing dates or revision numbers, which should be included for configuration management. The manuals do not have consecutive page numbering to determine if pages are missing or unapproved material has been added.
2. Driver's license records did not contain information that would indicate any full time Train Operators selected had current driver's licenses. Records indicated that only one of the two part time Train Operators selected may have a current driver's license. There was no record that any full time or any part time Train Operator selected had a current medical certificate.
3. Training records of four fulltime and two part time Train Operators for at least the past 2-years of length of employment were reviewed for compliance with requirements of General Order 143-B. The review indicated that each full time and each part time Train Operator had completed the required initial training program and had also completed refresher training and recertification within the past

two years. Training records for eight selected employees working as regular Central Controllers, Yard Supervisors, or Line Supervisors for at least the past 2-years of length of employment were reviewed for compliance with requirements of General Order 143-B. The review indicated that all had current refresher training and were currently certified in at least one of these three job categories. Three of the selected employees had current refresher training and were currently certified as Line Supervisors; three of the employees had current refresher training and were currently certified as Yard Supervisors; and seven had current refresher training and were currently certified as Central Control Supervisors. One of these employees also had current refresher training and was currently certified as a train operator.

4. Two of the seven Central Controllers, who are currently certified to work as Central Controllers, had a gap in refresher training and recertification from 2002 to 2005.
5. Training records for the six selected employees working as Auxiliary Central Controllers, Auxiliary Yard Supervisors, or Auxiliary Line Supervisors indicated that all had current refresher training and were currently certified in at least one of the three job categories. Five of the employees had current refresher training and were currently certified as Line Supervisors; four were currently trained and certified as Yard Supervisors; and four were currently trained and certified as Central Control Supervisors. Three of these employees were also currently trained and certified as train operators.
6. Training records for one of the employees listed in the Auxiliary Supervisors group showed the most recent refresher training and recertification as both a Yard Supervisor and a Line Supervisor took place more than two years earlier, on December 8, 2003.
7. Records for the three Auxiliary Supervisors, who were also currently certified as Train Operators, did not include information that they had current driver's licenses or current medical certificates.

Recommendations:

1. SDTI should adopt changes to verify and record that every person authorized to operate a train has a valid California Class B license with a passenger endorsement or a valid California Class C license with a current medical examination as required by General Order 143-B.
2. SDTI should adopt procedures to ensure that employees complete a comprehensive refresher training course, appropriate to their responsibilities, at least every two years.
3. SDTI should identify the issuing authority, add issuing dates or revision numbers, and include page numbers in its recertification program manuals.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**14**	Persons Contacted
Date of Audit	**04/17/06**	**Andy L. Goddard – System Safety Manager**
Auditors	**Claudia Lam**	
Department	**Safety**	

REFERENCE CRITERIA

1. Code of Federal Regulations, CFR 49 Part 659
2. CPUC General Order 164-C, Section 4 – Internal Safety Audit Requirements
3. SDTI System Safety Program Plan, December 2005, Section 8.2 Internal Safety Audits

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

INTERNAL SAFETY AUDIT (ISA) PROGRAM

Interview the SDTI representative in charge of the Internal Safety Audit Program and review SDTI's Annual Internal Safety Audit Reports for years 2003, 2004, 2005, and the work-in-progress for the year 2006 to determine whether or not:

1. Annual internal safety audits were performed in accordance with the reference criteria
2. All of the required safety program elements identified for ISA were completely covered within a three year period
3. The annual ISA reports were prepared and submitted to the CPUC by February 15th of each year
4. Corrective action plan recommendations were prepared, tracked and implemented in a timely manner.

RESULTS/COMMENTS

Findings:

1. The Annual Internal Safety Audits (ISA) for Year 2003, 2004, 2005 were performed in accordance with the reference criteria. The Annual ISA reports contain the checklists used by SDTI to conduct their ISA, a summary of the items that were scheduled for audit, and the status of each internal report. The individual checklists identify the Department audited, contact person(s) interviewed, results of audit, findings if any, and recommendations.

2. The Master Schedule shows the all of the required safety program elements identified for ISA were completely covered within a three-year period.

3. The System Safety Manager submitted SDTI's Annual Internal Safety Audit Report to the CPUC by deadline February 14 for year 2003, 2004 and 2005.

4. The Year 2005 Annual Report identified seven elements that were scheduled for the Internal Safety Audit. Five of seven scheduled for November were delayed until December due to preparation for the scheduled July 2005 opening of Mission Valley East Extension.

5. The PUC's designated representative to SDTI witnessed the performance of each ISA checklist and is

identified on all checklists.

6. Recommendations found during the ISA's are reported in the Annual Reports to the PUC. There are three recommendations identified for 2003 Annual ISA, two recommendations identified for Year 2004 Annual ISA, and no recommendations identified for 2005 Annual ISA.

7. The System Safety Manager tracks the closure or full implementation of recommendations found in ISA's.

8. All recommendations for Year 2003 and 2004 ISA are reported closed in Year 2005 Annual Report.

Recommendation:
None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**15**	Persons Contacted
Date of Audit	**04/18/06**	**Andy L. Goddard – System Safety Manager**
Auditors	**Claudia Lam**	
Department	**Safety**	

REFERENCE CRITERIA

1. Code of Federal Regulations, CFR 49 Parts 659.41 Investigations & 659.43 Corrective Actions
2. CPUC General Order 164-C, Sections 5 and 6
3. SDTI System Safety Program Plan, December 2005, Section 6.1.11 Requirements for Reporting and Investigating Accidents and Unacceptable Hazardous Conditions
4. SDTI Accident Investigation Procedures, Dated 07/01/05

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

ACCIDENT/INCIDENT REPORTING & INVESTIGATION

1. Interview SDTI representative directly involved in accident reporting and review at least eight immediately reportable accident reports submitted to the CPUC during the past two years to determine whether or not:
   a) The accidents were reported to the CPUC within 4-hours
   b) The accident investigation activities and reports were in accordance with the reference criteria
   c) The accident investigation activities and reports established primary and contributing factors were based upon facts.
   d) Corrective Actions identified from each accident have been implemented to minimize the accident from reoccurring
2. Review the accident records of the past two years selected to ascertain that a monthly accident, unacceptable hazardous condition, and corrective action summary report is filed on forms prescribed by the CPUC within 30 days from the last day of the month covered

RESULTS/COMMENTS

Findings:

1. Four immediately reportable types of accidents from 2004 and four from 2005 were reviewed. .

   The immediately reportable accidents from 2005 are:

   a. Between 9th Street and 10th Street Intersection on C Street, 4/11/05
   b. Witherby Street Bridge Right-of-Way, LRV-Pedestrian (Trespasser) Accident 12/05/05
   c. Right-of-Way at E32RA (El Cajon), 3/17/2005
   d. Bayfront / E Street Station, 6/20/2005

The "immediately reportable" accidents from 2004 are:

a. Bayfront Station, 4/18/2004
b. 19th and Commercial Street, 11/23/2004
c. Park Blvd. & E Street, LRV-Auto Accident, 12/20/2004
d. Front Street & E Street, LRV-Pedestrian Accident, 12/21/2004

2. Form R's that document the immediately reportable types of accidents were reported to the PUC within the 4-hour requirement.
3. Form T's & V's were submitted to the PUC at the end of the month as required by G.O.164-C.
4. The eight accidents reviewed included the accompanying accident report. The reports provided details of accident synopsis, accident description, scene description, post-accident inspection / investigation, findings, conclusions with a description of probable cause and contributing factors (if any), and recommendations.
5. The Appendices of each accident report contained collision reports, notification reports, accident photos, unusual occurrences reports, personal injury reports, LRV (post) accident inspection report, and a copy of SDTI's meeting with the train operator involved in the accident / incident (Accident Review Committee Meeting).
6. SDTI's Accident Reports for the eight immediately reportable accidents that were reviewed were submitted to the PUC designated representative as required by G.O. 164-C and SDTI's Accident Investigation Procedures.

Recommendation:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**16**	Persons Contacted
Date of Audit	**04/19/06**	**James R. Hecht**
Auditors	**Mahendra Patel**	**Jay Sender**
Department	**SANDAG Engineering**	

REFERENCE CRITERIA

1. CPUC General Order 164-C, Sections 7 and 8

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

SAFETY CERTIFICATION OF THE MID-COAST PROJECT

Interview SANDAG's Director of Construction and Engineering to determine whether or not:

1. A Safety Certification Plan has been prepared for the Mid-Coast Project in accordance with the reference criteria
2. A safety certifiable elements list has been prepared to identify all hazards associated with the Mid-Coast Project
3. The plan provides for verification of project design criteria including fire / life safety standards.
4. The plan identifies safety critical items and activities that must be completed prior to final safety certification.
5. The plan requires a Safety Certification Letter and Safety Certification Verification Report submittal to the CPUC prior to the commencement of revenue service.

RESULTS/COMMENTS

Findings:

2. SANDAG representatives provided a brief description of the Mid-Coast Project and Safety Certification. The project is about 11 miles long and has 8 planned stations.
3. SANDAG has awarded a contract to Parsons Transportation Group Incorporated (Consultant). This contract includes preparation of a Draft Supplemental Environmental Impact Statement/Report (SEIS/SEIR), Final Environmental Impact Statement/Final Supplemental Environmental Impact Report (FEIS/FSEIR), Preliminary Engineering (PE), and preparation of Safety Certification Plan (SCP) in accordance with CPUC General Order (GO) 164-C and Federal Transit Administration (FTA) Chapter 49 of the Code of Federal Regulations (CFR) Part 659.
4. SANDAG estimates that the PE will start in the year 2007 and be completed in the year 2009.
5. Since the project is not in the PE phase, the SCP has not been prepared.
6. SANDAG stated that the Consultant will prepare the SCP during the PE phase to meet the requirements of GO 164-C.

Recommendations:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**17**	Persons Contacted
Date of Audit	**04/20/06**	**Jay Sender – Systems Engineer**
Auditors	**Mahendra Patel**	
Department	**SANDAG Engineering**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, 18 – Configuration Management

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

CONFIGURATION MANAGEMENT

Interview SANDAG representatives that are directly involved in configuration management and track a sample of changes to the rail system to determine whether or not:

1. The changes made were submitted, approved, implemented and documented in accordance with the reference criteria
2. The safety critical changes were reviewed and approved
3. The record drawings incorporated and distributed the changes to the appropriate departments
4. The completed documentation was archived properly in a timely manner

RESULTS/COMMENTS

Findings:

1. The documentation listed below was not on-file at SANDAG's Engineering offices. SANDAG representative made a copy of this from the respective Resident Engineer's file.
2. The following documentation was reviewed:
    - Broadway Wye Interlocking and Blue Line Switch Machine Replacement Project (CIP 10834/10879) – MTDB Special Provisions Notice to Contractor Proposal and Contract Confirmed; Contract Drawings; Submittal Log, Various Contract Change Orders (CCO); CCO Log; Various Construction Memorandums; As-Built Drawings; Various revised Standard Operating Procedures (SOP); etc.
    - Refurbish and Standardize Traction Power Substations Project (CIP 10799) - Various Contract Change Orders (CCO); CCO Log; Various Construction Memorandums
    - LRT Station Platform Modifications Project (CIP 10954) – Submittal Log; Various memorandums and correspondence; etc.
3. SANDAG representative provided a brief description of the general Configuration Management Process as follows:
    - MTDB Special Provisions Notice to Contractor Proposal and Contract Confirmed document and Contract Drawings form the basis for construction contract.
    - Contractor submittals are reviewed by the designers and the review results are documented in the design correspondence. The submittals are tracked by the submittal log that shows the status of the submittal, such as, approved, approved as noted, returned for correction, etc. Submittals and documentation are generally kept in Resident Engineer's file. However, a documentation trail

may not exit in all cases to show the final status of approved as noted and returned for correction submittals.

- CCOs are tracked by the CCO log that shows information such as, description, reason, estimated cost, dates to and from contractors, etc. Each CCO is recommended by the Construction Engineer and approved by the Director of Engineering & Construction. Construction Memorandum documents the internal approval of the CCO.
- Contractor submits the as-built drawings that show contractor's mark-up and hand written notes. MTDB / SANDAG designers incorporate these on the contract drawings which then are identified as as-built drawings and kept in electronic data base for future reference.
- Relevant SOPs are revised to capture the changes that affect the operation.
- MTDB Design Manual dated July 1992 and MTDB Construction Manual dated September 29, 1997 are still applicable documents; however, they are not consistently followed for the configuration management.

4. SANDAG does not have Configuration Management policies in place to implement the requirements of Section 8.3.2 of December 2005 System Safety Program Plan. Furthermore, SANDAG still has not implemented the corrective action plan for Recommendation 9 of the 2003 Triennial Audit. Recommendation 9 states "MTDB should develop Configuration control procedures for all projects to assure that all property, equipment, system design elements, etc. are documented as to configuration, accurately and completely."

Recommendation:

SANDAG should develop Configuration Management control procedures for all projects to ensure that all property, equipment, system design elements, etc. are documented accurately and completely.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**18**	Persons Contacted
Date of Audit	**04/20-21/06**	**Tom Tupta – Superintendent of Transportation** **Mary Jane Greenland – Human Resources Manager**
Auditors	**Gary Rosenthal**	
Department	**Transportation**	

REFERENCE CRITERIA

1. CPUC GO 143-B Section 12.04-Hours of Service – Safety Sensitive Employees, dated 1/20/2000

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

HOURS OF SERVICE REVIEW

Select 10 names of employees from the Transportation Department in the capacity of Central Controller, Yard Supervisor, Line Supervisor, and Train Operator. Review the "time of duty" records prepared for the past six months for each selected employee and determine whether or not each employee in a safety sensitive position, did not remain on duty for more than 12 consecutive hours spread over a period of 16-hours. *Note: Initial on duty status man only begin after 8 consecutive hours off duty.*

RESULTS/COMMENTS

Findings:

1. Hours of Service records dated November and December 2005 for six Train Operators, eight Central Controllers/Yard Supervisors/Line Supervisors, and six Auxiliary Supervisors/Central Controllers were reviewed.
2. Hours of Service records were provided for each selected employee on the Transportation Department – Bi-weekly Work Hours Report which includes day, date, run designation, paid regular shift hours, and paid overtime hours. The records do not include the employee's on duty time, off duty time, or consecutive hours off duty prior to assuming on duty status. The records covered the period of time from late October 2005 through December 16 and 18, 2005 rather than the entire months of November and December 2005.
3. The auditor discussed the employee on duty time, off duty time, and consecutive hours off duty prior to assuming on duty status, with the SDTI representative. The hours of service records from mid-December 2005 through the end of the month was also discussed. SDTI agreed to mail copies of additional records for all Transportation Department employees, covered by Hours of Service requirements to the auditor. Those records include the period from December 19 through 31, 2005 and address employee on duty time, off duty time, and consecutive hours off duty prior to assuming on duty status.
4. SDTI promptly mailed copies of the Hours of Service records for December 19 through 31, 2005 to the auditor on April 27, 2006. The records were on forms titled San Diego Trolley, Inc. – Transportation Department Daily Assignments Report include "Report" times (time on duty) and "Clear" times (time off duty) as well as regular and overtime paid hours. The forms include no direct record of consecutive hours off duty prior to assuming on duty status. In most cases, consecutive hours off duty prior to assuming on duty status could be calculated by searching through prior "Daily Assignment Report" forms for all Transportation Department employees. That process would be tedious for SDTI in the normal course of business as well as for the auditor during the review.

5. Review of the December 28 to December 31, 2005 records disclosed there were 11 instances that the employees in safety sensitive positions exceeded 12 hours from time on-duty to the time off-duty. Excess time on duty ranged from 12 hours, 3 minutes to 13 hours, 24 minutes. There were two additional instances that may indicate employees had excess hours on duty, but there was no "Clear" off duty time recorded.
6. The records also regularly include written alterations or additions to the printed record without indication of the persons responsible or reasons for the changes. In several instances, the word "Game" was written next to the names or times of employees, apparently indicating that a football game was the reason for being on duty in excess of 12 hours. A similar situation was noted during the Commission staff's 2003 SDTI Triennial Safety Audit.

Comment:

The SDTI representatives were very helpful and candid.

Recommendations:

1. SDTI should take steps to preclude requiring or allowing safety sensitive employees from working beyond the hours of service limits established in General Order 143-B.
2. SDTI should adopt hours of service record forms which clearly present covered employees' on duty time, off duty time, and consecutive hours off duty prior to assuming on duty status to ensure compliance with the Commission's hours of service requirements.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**19**	Persons Contacted
Date of Audit	**04/18/06**	**Bill Burke, Director Transit System Security** **Larry Savoy, Assistant Director Transit System Security** **Stephanie S. Murphy, Crime Analyst**
Auditors	**Gary Rosenthal**	
Department	**Transit Security**	

REFERENCE CRITERIA

1. SDTI System Security Program Plan, July 2005, Section 3.4 Security and Critical Incident Committee, Section 5.1.3 Reports, Section 7.3 Implement Modifications.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

TRANSIT SECURITY

Interview the Director of Transit Security and review the relevant documentation prepared during the past 12-months for Transit Systems Security Activity Report, Code Compliance Inspection Report, Special Enforcement Unit, and Bicycle Unit to determine whether or not:

1. Security and Critical Incident Committee (SCIC) meetings were held on a regular basis to identify security breach causes, propose and recommend additions or changes to policies and procedures in order to prevent or minimize further security breaches of similar nature
2. Threat assessments have been performed and recommendations implemented
3. Periodic training is provided to the employees on identifying and reporting suspicious behavior (anti-terrorism)
4. Contingency plans for the identified scenarios, such as, violent criminal activities, bomb threats, etc. have been established
5. Security measures have been implemented when requested by the Federal Transportation Administration in response to the declared security alerts
6. Security Plan modification process was followed as a result of changes to security needs and conditions of the transit agency

RESULTS/COMMENTS

Findings:

The auditor's interview of the Director of Transit Security and other SDTI Security representatives and reviews of relevant documents disclosed the following:

1. The System Security Program Plan does not specify how frequently the SCIC should meet, but the auditor was told that the committee attempts to meet about every six weeks. Meeting minutes showed that SCIC meetings were held eight times from 01/12/05 to 01/19/06 with periods between meetings ranging from less than a month to just over three months. There is no record in the meeting minutes concerning identification of security breach causes with proposed additions or changes to policies and procedures in order to prevent or minimize further security breaches of similar nature. The minutes regularly include activities and proposals for activities to improve the security program, however subsequent meeting minutes do not include regular follow-up of those activities or proposals status.
2. A November 2005 report documents a threat and vulnerability assessment. The report contains 20

findings with one or more recommendations for each finding. Discussion with the SDTI representatives indicates that evaluation and development of plans for implementation of the recommendations is in progress.

3. The SDTI Security representatives and records indicate that periodic security training is provided to all security personal. Security training, including identifying and reporting suspicious behavior (anti-terrorism) is provided to train operators by Transit System Security during initial train operator training. Similar training for all other SDTI employees has not been implemented. One finding of the MTS threat and vulnerability assessment was the need to provide all SDTI employees with security training, including identifying and reporting suspicious behavior.
4. Contingency plans for the identified scenarios such as violent criminal activities, bomb threats, etc. are part of emergency drills conducted with outside agencies. However, the November 2005 Threat and Vulnerability Assessment identified that in-house emergency security exercises are not being conducted.
5. The SDTI Security representatives indicated and security directives to all SDTI departments verified that the agency responds to Office of Homeland Security and Transportation Security Administration threat warnings, as well as security requests from FTA. Specific requests are implemented consistent with available resources and action is taken to acquire the necessary resources if those resources are not available. The auditor did not find evidence of any instance where appropriate response to security action requests from FTA had been ignored.
6. The System Security Program Plan establishes that the Security and Critical Incident Committee and the Internal Review Team review the SSPP each February. Recommendations received and developed by the Committee and Team are reported to the President and General Manager. The recommended changes, which also include recommendations identified in the November 2005 Threat and Vulnerability Assessment, were incorporated into an Office of Homeland Security grant request. The Office of Homeland Security had yet to respond to the grant request at the time of the audit. Completion of the review and adoption of proposed changes to the System Security Program Plan is pending receipt of information concerning the grant request.

Recommendations:

1. SDTI should ensure that SCIC meetings address and record in meeting minutes, as required by SSPP, identification of security breach causes and proposed additions or changes to policies and procedures that would prevent or minimize further security breaches of similar nature
2. SDTI should adopt a method of regular scheduling of SCIC meetings or clearly establish another appropriate method to determine a minimum frequency between such committee meetings.
3. SDTI should adopt a means to follow-up actions items identified and proposed in SCIC meetings. SCIC meeting agendas should include action items with status and constructive ideas and activities identified in previous meetings.
4. SDTI should develop and implement a program of security training, including identifying and reporting suspicious behavior, for all SDTI employees as identified in the threat and vulnerability assessment.
5. SDTI should develop and implement a regular program of in-house emergency security exercises.
6. SDTI should complete the SCIC and President and General Manager SSPP recommendation reviews then adopt and implement the proposed changes to the System Security Program Plan.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**20**	Persons Contacted
Date of Audit	**04/18/06**	**Andy L. Goddard – System Safety Manager**
Auditors	**Claudia Lam**	
Department	**Safety**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 4.1.4 Materials and Chemicals Management
2. SDTI Hazardous Communication Program, dated January 2003.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

HAZARDOUS MATERIALS PROGRAMS / ENVIRONMENTAL MANAGEMENT

Interview the SDTI manager-in-charge and review 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. Training that emphasizes safe handling of hazardous materials has been adequately provided as required by the reference criteria
3. Appropriate records are kept for employees who have taken the Hazardous Material Program

RESULTS/COMMENTS

Findings:

1. The employees of Light Rail Vehicle (LRV), Revenue, Stores, Wayside and Facilities Departments are required to undergo Hazardous Communication Program re-certification and training from 2005 through 2006. The Transportation Department is not required to undergo the Hazardous Communication Program re-certification and training.
2. A review of the SDTI Departments subject to Hazardous Communication Program re-certification and training requirements for Calendar Year 2005-2006 showed that the Safety Manager performed the Annual requirement as follows:

Department	Year 2005	Year 2006
Light Rail Vehicle	8/05	DUE 8/06
Revenue	2/05	COMPLETE 2/06
Stores	4/05	COMPLETE 4/06
Wayside	7/05	DUE 7/06
Facilities	12/05	DUE 12/06

3. Copies of each individual employee confirmation of attendance (sign-in sheets) at the session and exam are kept on file at the Safety Department, Human Resources Department, and the Department the individual works in.
4. Staff selected one employee from each department (LRV, Revenue, Stores, Wayside, and Facilities) and reviewed copies of their exams kept on file at the Human Resources Department. All of the exams reviewed were filed appropriately and showed that each employee received the required training in the Hazardous Material Program for Year 2005.

Recommendation:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**21**	Persons Contacted
Date of Audit	**04/19/06**	**Andy L. Goddard – System Safety Manager**
Auditors	**Claudia Lam**	
Department	**Safety**	

REFERENCE CRITERIA

1. SDTI System Safety Program Plan, December 2005, Section 6.1.7 Emergency Response Agency Familiarization Program
2. SDTI Emergency Response Agency Familiarization Program, dated July 2005

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

EMERGENCY RESPONSE AGENCY FAMILIARIZATION PROGRAM

Interview the SDTI representative in charge of the Emergency Response Agency Familiarization Program and review records and documentation for the last two years to determine whether or not:

1. Emergency drills that included tabletop and practical exercises were planned and carried out with the participation of the 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 SDTI operates and emergency response teams
3. All drills were evaluated and critiqued in a timely manner and any recommendations were recorded, scheduled and tracked to completion.
4. Emergency planning addresses both accidental emergency events and security related emergency events

RESULTS/COMMENTS

Findings:

1. Documents showed that emergency drills that included tabletop and practical exercises were planned and performed for Year 2004-2005. The participating external agencies are Paramedics, Fire Department, Police Department, and SDTI Transit Security Department etc.
2. SDTI conducted FTA funded Emergency Drills at four locations: Mission Valley East Extension (2005), Chula Vista Bayfront Station (2004), Weld Station (2003) and Qualcomm Station (2002). The areas chosen for the emergency drills presented different scenarios and environmental challenges for emergency response teams to consider (e.g. underground station, open air station, stadium, etc.).
3. Copies of SDTI Memorandums documenting the "Emergency Response Training" showed the training was provided to 1) San Diego SWAT Department, 2) Sheriffs Department, 3) K-9 Training on LRV, 4) San Diego Police Department and San Diego Police Department SWAT. Approximately 500-600 people were trained in Year 2005.
4. All drills were evaluated and critiqued within 2 months after drill occurred.
5. Drill Participants in the Mission Valley San Diego State University put together a Post Exercise report dated October 31, 2005. The report evaluated the drill including all aspects of communication, safety and security, public information, etc.

Recommendation:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**22**	Persons Contacted
Date of Audit	**04/18/06**	**Mike Gandy – LRV Maintenance Supervisor**
Auditors	**Sue Feyl**	**Ed Lindstrom – LRV Maintenance**
Department	**Light Rail Vehicle Maintenance**	

REFERENCE CRITERIA

1. CPUC General Order 143-B, Sections 12.02, 13.03, and 14.03
2. SDTI System Safety Program Plan, December 2005, Section 5.2.1, LRV Maintenance Training
3. SDTI LRV Maintenance Training Program, dated 5-2005.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

LIGHT RAIL VEHICLE MAINTENANCE TRAINING PROGRAM

Interview the SDTI representative in charge of light rail training and certification programs and randomly select at least five light rail maintenance employees and review their training records for a minimum of the past 2-years to determine whether or not:

1. The maintenance worker has received the required training to perform vehicle inspections
2. Records are available to show maintenance worker is qualified to perform inspections
3. Maintenance workers(s) who have completed the 4-year Apprentice Program are registered with the State of California or are currently in the process of achieving their certification.

RESULTS/COMMENTS

Findings:

1. Five maintenance workers selected at random and their training records were reviewed. The maintenance workers were from assistant Lineman, Lineman, and Electromechanic positions.
2. All maintenance workers had received the required training to perform their inspection tasks.
3. The LRV maintenance training program has been updated to include the recent addition of Siemens S70 LRV's to the current vehicle fleet.
4. There is no provision for retraining or recertification if a LRV employee who is off-duty due to a prolonged absence, returns back to work.

Recommendation:

SDTI should ensure that LRV employees who are off-duty for a prolonged absence period receive retraining or re-certification prior to resuming LRV maintenance inspection tasks.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**23**	Persons Contacted
Date of Audit	**04/19/2006**	**Mike Gandy – LRV Maintenance Supervisor**
Auditors	**Sue Feyl**	
Department	**Light Rail Vehicle Maintenance**	

REFERENCE CRITERIA

1. CPUC GO 143-B Section 14.04-Light-Rail Vehicle Maintenance Practices and Records
2. SDTI System Safety Program Plan, December 2005, Section 5.2.2 LRV Scheduled Maintenance
3. SDTI LRV SOP's E-2002 Daily Inspection, E-2003 6-Month Oil Inspection, E-2004 7.5 K Inspection, E-2005 22.5K Inspection, E-2006 1-Year Inspection, E-2050 Daily Inspection of SD-100, E-2051 7.5 K Inspection of SD-100, E-2059 One-Year Inspection of SD-100, E-2063 22.5K Inspection of SD-100, E-2200 Daily Inspection of S70, E-2201 S-70 Computer Download Procedure

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

LRV MAINTENANCE, INSPECTIONS AND RECORDS

Randomly select three U2-models (Car nos. 1001-1071), three SD-100 models (Car nos. 2001-2052) and three S70 models (Car nos. 3000-3011) and review all the appropriate records prepared during the past 12-months to determine whether or not:

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

RESULTS/COMMENTS

Findings:

1. Daily, 7.5k mile, 15k mile, 22.5k mile, 50k mile, 70k mile, 360k mile and 700k mile inspections are required on U2 and SD-100 models.
2. Daily, 5k mile, 15k mile, and 60k mile inspections are required on S70 inspections
3. The Daily – 70k mile inspections are being performed as needed.
4. 360k mile and higher mile inspections are not being performed by LRV Department.
5. The 7.5k inspection record for car no. 2043 dated 4/12/2006, indicated 2-motor brushes needed to be replaced. The trouble report for this defect was never written.
6. The LRV Supervisor signs off on each inspection, but could easily overlook a loose or missing drain plug, etc. The current system is inadequate for tracking defects. Better tracking software would help with this problem.
7. The database software known as Ellipse (by Mincom), currently in use by LRV Department is very cumbersome to use. Staff determined there is a backlog of data to be entered into the system.
8. There are few controls to stop theft at the tool locker. A mechanic signs out the tools and simply returns them.

Comment:

Staff suggests SDTI review the extent of tool theft and losses at the LRV Maintenance Department to minimize operating costs for replacement of equipment.

Recommendation:

1. SDTI should ensure that a trouble report is generated for defects found during an LRV inspection that requires replacement parts.
2. SDTI should ensure that the current database system used for "tracking" the status of corrective actions taken on defects noted in the Trouble Tickets and Preventive Maintenance Inspection forms is adequate (similar to Recommendation for Checklist Nos. 5 & 6).
3. SDTI should determine the extent of the backlog of maintenance entries to the Ellipse system and develop a schedule to ensure that all entries are properly entered into the system and tracked to closure.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**24**	Persons Contacted
Date of Audit	**04/17/06**	**Mary Jane Greenland – Human Resources Manager**
Auditors	**Sue Feyl**	
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. SDTI System Safety Program Plan, December 2005, Section 6.1.4 Drug and Alcohol Policy
4. SDTI Drug and Alcohol Policy, dated 6-2003.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

DRUG & ALCOHOL POLICY

1. Interview the SDTI representative in charge of the Drug and Alcohol Policy and determine whether or not SDTI's policy is in compliance with State and Federal regulations
2. Review the report from the most recent FTA audit of the SDTI 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(s) was prohibited from performing safety related duties
   b) The employee(s) was terminated from SDTI.
   c) The employee(s) returning to active employment after seeking assistance from the Rehabilitation Program signed a "Return to Work Agreement" which requires the following:
      1. Employee must pass an alcohol test and drug screening before returning to work
      2. A Substance Abuse Professional (SAP) must determine that the employee has followed an appropriate rehabilitation program and is capable of returning to duty.
      3. The employee must submit to at least six drug and alcohol tests within the 12-month period following return to duty.
      4. Failure of any drug or alcohol test or refusal to immediately submit to such testing during this period shall be grounds for immediate termination.

RESULTS/COMMENTS

Findings:

1. The last FTA audit of SDTI's Drug and Alcohol Policy was performed on March 6-9, 2000. The FTA's Final Audit Report identified 78 items of concern following their review of policy manual, Drug and Alcohol Program Manager, records management, breath alcohol collections, urine collections, medical review officer, and selected random tests. The FTA's letter dated August 30, 2000 to SDTI's President-General Manager acknowledged SDTI's corrective actions to the FTA's concerns. Based upon the information provided by SDTI, the FTA has found SDTI's Program in

compliance with the Federally mandated Drug and Alcohol Program.

2. SDTI has a "zero-tolerance" policy for violation of the Drug and Alcohol Policy who test positive for drugs or alcohol usage. Employees who fail a drug screen test or a finding of an alcohol concentration measure of 0.04% or greater subjects the employee to termination from SDTI employment.
3. Safety Sensitive employees who test "positive" for drug usage are terminated within 5-days. There are no exceptions to the "zero tolerance" rule.
4. Review of records dated May 2003 – April 2006 indicate of the more than 400 safety sensitive employees at SDTI, less than 1.5% were terminated due to drug use.
5. Review of records dated May 2003 – April 2006 indicate that 6 employees were terminated for drug use.
6. Employees who have developed an addiction to, dependence upon or problem with alcohol or drugs (illegal or legal) are encouraged to seek assistance. No disciplinary action is issued against an SDTI employee seeking help with their problem prior to a request to submit to an alcohol or a drug screen test and SDTI learns of a violation of the drug and alcohol policy.
7. Review of records dated May 2003 – April 2006 indicate two employees have chosen the Rehabilitation Program. These two employees have successfully completed all requirements of the "Return to Work Agreement". No exceptions were noted.

Recommendation:

None.

2006 CPUC SYSTEM SAFETY AUDIT CHECKLIST FOR THE SAN DIEGO TROLLEY, INC.

Checklist No.	**25**	Persons Contacted
Date of Audit	**04/20/06**	**William A. Prey – Construction Engineer**
Auditors	**Mahendra Patel**	**Jay Sender – Systems Engineer (Part time)**
Department	**SANDAG Engineering**	

REFERENCE CRITERIA

1. CPUC General Order 164-C, Section 3.
2. SDTI System Safety Program Plan, December 2005, Section 8.3.4 Contractor Safety Program

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

CONTRACTOR SAFETY PROGRAM

Interview the SANDAG representative in charge of the Contractor Safety Program and determine if:

1. SANDAG's procedures and practices identify training necessary for contractors
2. The procedures and practices identify for the contractors and SDTI managers, that SDTI is in charge and that its contractors and their employees must comply with all established safety rules and procedures
3. Training records are available on-file documenting contractors who have received Contractor Safety Program training.

RESULTS/COMMENTS

Findings:

1. Staff reviewed the following documentation:
   a. Mission Valley East (MVE) Light Rail Transit Project – Construction Program Safety and Health Plan, Revision dated April 10, 2001.
   b. San Diego Northern Railway (SDNR) Contractor Safety Training Manual – Guide & Regulations for Non-Railroad Contractors & Personnel Working on the SDNR Right-of Way, Version 2.3 dated May 23, 2005.
   c. Special Provisions – Notice to Contractor Proposal and Contract Conformed for Spring Street Rail Replacement Project (Project LRT-11060, Contract 5000359), Yard Traction Power Substations Project (Project LRT-11088 & 11421, Contract 5000454), and Fiber-Optic Network Installation Project (Project LRT-10498, Contract 5000460).

2. SANDAG representatives provided a brief description of the Contractor Safety Program. SANDAG controls the contractor safety for major projects, such as extensions, and SDTI controls the contractor safety for projects on active Right-of Way (Revenue Service lines).

3. For extension project such as MVE, SANDAG Construction Program Safety and Health Plan document describes various contractor safety requirements such as contractor/subcontractor safety plan, safety notices, safety orientation, contractor training, reporting accidents, incidents, and occupational injuries & illnesses, hazard communication, general safety & health guidelines, documentation, etc. All pertinent documentation including contractor training records are kept in SANDAG files and contractors files.

4. SANDAG has implemented contractor safety program for SDNR in accordance with contractor safety training manual. SANDAG is in the process of requesting SDTI to implement a similar contractor safety program.

5. SDTI controls the contractor safety for projects such as Spring Street Rail Replacement Project on active rail lines. SDTI policy is the Railroad Roadway Worker's Right-of-Way Policy as mandated by the FRA for joint-usage railroads. Contractors follow the SDTI policy. Pre construction meetings are conducted with the contractors. A full time SDTI employee (flagger) is assigned to each contractor work area to enforce SDTI contractor safety policy. SDTI approves contractor's flagging requests and red tag requests. Contractor conducts the tail gate meetings and safety trainings as required by SDTI policy. All pertinent documentation including training records are kept in contractors files.

Recommendation:

None.