
2015

TRIENNIAL SAFETY REVIEW OF SAN DIEGO TROLLEY, INC. (SDTI)

RAIL TRANSIT SAFETY BRANCH
SAFETY AND ENFORCEMENT DIVISION
CALIFORNIA PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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Final Report
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2015 TRIENNIAL SAFETY REVIEW OF SAN DIEGO TROLLEY, INC. (SDTI)

ACKNOWLEDGEMENT

The Rail Transit Safety Branch staff of the California Public Utilities Commission conducted this system safety program review. Staff members directly responsible for conducting safety review and inspection activities include:

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1. EXECUTIVE SUMMARY

The Rail Transit Safety Branch staff (Staff) of the Safety and Enforcement Division (SED) of the California Public Utilities Commission (Commission) conducted an on-site safety review of the San Diego Trolley, Inc. (SDTI) system safety program in June 2015.

Staff conducted records reviews of SDTI safety programs and performed inspections of tracks & switches, grade crossings, light rail vehicles, and overhead lines from June 8-12, 2015. An entrance meeting preceding the records reviews was held on June 15, 2015 including executive level management and representatives from CPUC, SDTI, and the San Diego Association of Governments (SANDAG). Staff provided preliminary review findings and recommendations to SDTI and SANDAG management and representatives at the end of each records review and at the formal exit meeting at SDTI Offices on July 2, 2015.

The review results indicate SDTI has a comprehensive system safety program and has effectively implemented its System Safety Program Plan (SSPP). However, staff noted exceptions during the review which are described in the Findings and Recommendations checklist section. Staff found 16 recommendations for corrective action from the 39 checklists.

The Report Introduction is presented in Section 2. The Background in Section 3 contains a description of the SDTI rail system. Section 4 describes the review procedure, and Section 5 provides the review findings and recommendations. The 2015 SDTI Safety Review Abbreviations List is found in Appendix A. The Checklist Index and Recommendations List are included in Appendices B and C respectively. The Safety Review Checklists are presented in Appendix D.

2. INTRODUCTION

The Commission General Order (GO) 164-D, *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies to perform a review of each rail transit agency's system safety program plans a minimum once every three years. The purpose of the triennial review is to verify compliance and evaluate the effectiveness of each rail transit agency's System Safety Program Plan (SSPP) and to assess the level of compliance with GO 164-D as well as other Commission and regulatory safety requirements. This is the sixth triennial safety review of SDTI and the previous review occurred June 2012.

On May 18, 2015, Staff mailed a letter to the Metropolitan Transit System (MTS) Chief Executive Officer advising that the Commission's safety review had been scheduled June 8-12, 2015. The letter included 39 checklists that served as the basis for the review and outlined inspections of track, switches, interlockings, signals, overhead catenary system, grade crossings, and light rail vehicles. Train Operations were observed for compliance to SDTI Operating Rules. 32 checklists focused on the verification and the effective implementation of the SDTI SSPP. Three checklists reviewed SANDAG policies and procedures. SANDAG is the independent agency responsible for the design, construction, safety certification, and implementation of Metropolitan Transit System (MTS) capital projects.

The 2015 SDTI triennial safety review consisted of on-site physical inspections of track, switches, signals, grade crossing equipment, vehicles, overhead lines; observations of train operations; and records review of SSPP elements, SDTI standard operating procedures (SOP), and other SDTI rules during the week of June 8-19, 2015. At the conclusion of each review activity, staff provided SDTI and SANDAG representatives with a summary of the preliminary findings and discussed any recommendations for corrective action.

3. METROPOLITAN TRANSIT SYSTEM BACKGROUND

The Metropolitan Transit Development Board (MTDB) was created in 1975 by passage of California Senate Bill 101 and was empowered to design, engineer, and build fixed guideway facilities within San Diego County, California. San Diego Trolley, Inc. (MTS-Rail) 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 (Senate Bill 1703 effective January 1, 2003) directed consolidation of the San Diego Association of Governments (SANDAG) with the capital projects functions of the transit boards MTDB and North San Diego County Transit Development Board (NCTD). The planning, programming, project development, and construction functions of MTDB and NCTD were shifted to SANDAG to create a consolidated regional transportation planning and development agency. In 2005, MTDB changed its name to the Metropolitan Transit System (MTS) to reflect the new relationship with SANDAG. The area of jurisdiction is about 570 square miles serving a population of 3 million, approximately 75% of southwestern San Diego County.

SDTI Rail System Description

The SDTI LRT system operates over 53.5 miles on three routes, mostly double-tracked, with 53 stations. MTS fiscal year ridership averaged 31,207,081 in 2012, 34,469,069 in 2013, and 39,638,656 in 2014. SDTI's rail lines are classified as "light rail" on semi-exclusive right-of-way. There is a shared corridor with BNSF, Amtrak, and Coaster trains beginning at Park Blvd/Harbor Drive on the Bayside Corridor going through the Old Town Corridor parallel to Pacific Highway and ending approximately a quarter mile north of the Taylor Street grade crossing. In addition to the shared corridor, portions of SDTI track on the Blue and Orange Lines are jointly used by light rail transit and freight operations under scripted temporal separation with limited night-time joint operations. The San Diego and Imperial Valley Railroad (SDIV), a subsidiary short line railroad owned by Rail America Corporation, shares track with SDTI on the Blue line from the Imperial Transfer Station to the International Border. SDTI and SDIV share track on the Orange Line from Commercial Street at the Imperial Junction to Bradley Avenue in El Cajon, California. Freight operations by SDIV operate during the early morning hours with a fringe period of overlap with SDTI light rail transit operations under a Federal Railroad Administration (FRA) waiver. FRA approved SDTI standard operating procedures ensure during this overlap mode of operation the light rail vehicles remain spatially and temporally¹ separated.

¹ Temporal separation exists when no simultaneous operation of light rail transit and freight trains on the same tracks occurs

SDTI Lines

SDTI operates four lines described as:

- Blue Line - Revenue service began on July 26, 1981. The Blue Line currently extends 15.4 miles from the America Plaza Station to the San Ysidro station at the U.S-Mexico international border. Trains operate on city streets for 1.4 miles (C Street & India to 12th & Imperial) of the total 15.4 miles with the remaining 14 miles from 12th & Imperial to the San Ysidro station operating in semi-exclusive right-of-way². The Blue Line operates through four jurisdictions: the cities of San Diego, National City, Chula Vista, and an unincorporated area of San Diego County.
- Orange Line – Revenue service on the first phase, from Imperial Transfer to the Euclid Avenue station, began on March 23, 1986. The line was extended in 1989 to El Cajon, and to Santee in 1995. The Orange Line currently extends 16.9 miles from the Santa Fe Depot station (via the downtown San Diego C Street corridor) to the El Cajon Transit Center station. Of the 16.9 miles, 1.7 miles of track are operated on city streets (C Street & India to 32nd & Commercial). After the 32nd & Commercial station, the line continues east for an additional 13.8 miles on semi-exclusive right-of-way to the El Cajon Transit Center station. The Orange Line operates through four jurisdictions including the City of San Diego, Lemon Grove, La Mesa and El Cajon.
- Green Line - Revenue service began on July 10, 2005. The Green Line begins at the Imperial Transfer Station and extends 23.8 miles through Mission Valley, under San Diego State University (SDSU) 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.
- Silver Line – One Presidential Conference Car (PCC) Vintage Trolley Streetcar began revenue service on August 2011 and the second PCC began in March 2015. The PCC operates on an existing 2.7 mile downtown loop from the 12th & Imperial Transit Center station clockwise, adjacent to Harbor Drive, on C Street, and Park Blvd and completes its loop at the 12th & Imperial Transit Center station on the “third track”. The PCC operates on Tuesday, Thursday, Saturday, Sunday and major holidays from approximately 10am – 2 pm on 30-minute headway.

² CPUC General Order 143-B, §9.04 Alignment Classification: Semi-exclusive is 1) fully exclusive right-of-way with at-grade crossings, protected between crossings by a fence or substantial barrier, if appropriate to the location. 2) Within street right-of-way, but protected by six-inch high curbs and safety fences between crossings. The safety fences should be located outside the tracks. 3) Within street right-of-way, but protect by six-inch high curbs between crossings. A safety fence may be located between tracks. 4) Within street right-of-way, but protected by mountable curbs, stripping, or lane designation.

Current Extensions Planned

Mid-Coast Corridor Transit Project:

The Mid-Coast Trolley project will extend Trolley service from Santa Fe Depot in Downtown San Diego to the University City community, serving major activity centers such as Old Town, the University of California San Diego (UCSD), and Westfield UTC. Construction is anticipated to begin in 2016, with service beginning approximately four years later.

The Mid-Coast extension begins just north of the Old Town Transit Center and travels in existing railroad right-of-way and alongside Interstate 5 to Gilman Drive. It crosses to the west side of I-5 just south of Nobel Drive and continues on to the UCSD campus, crosses back to the east side of I-5 near Voigt Drive to serve the UCSD east campus and medical centers, transitions into the median of Genesee Avenue, and continues down Genesee Avenue to the Westfield UTC Transit Center.

The project will connect corridor residents with other Trolley lines serving Mission Valley, East County, and South County. As an extension of the existing Blue Line, it will offer a one-seat (no transfer) ride from the international border and communities south of Downtown San Diego all the way to University City. This new service will enhance direct public access to other regional activity centers and improve travel options to employment, education, medical, and retail centers for corridor residents, commuters, and visitors.

The Federal Transit Administration (FTA) approved the project's entry into final engineering in April 2015. SANDAG is now working to secure a full funding grant agreement (FFGA) from the FTA's New Starts program. Pre-construction activities including right-of-way acquisition and utility relocation will be in process in 2015. Construction for utility relocation is anticipated to begin in late summer 2015. Project construction is anticipated to begin in late 2016 and revenue service is tentatively scheduled for Summer 2021.



4. REVIEW PROCEDURE

Staff conducted the review in accordance with the Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial On-Site Safety and Security Reviews of Rail Transit Agency*. Staff developed thirty-nine (39) checklists to cover various aspects of system safety responsibilities based on Commission and FTA requirements, the SDTI SSPP, safety related SDTI documents, and staff knowledge of the SDTI system. The 39 checklists are included in Appendix C.

Each checklist identifies safety-related elements and characteristics reviewed or inspected by staff. The checklists reference criteria include Commission general orders, SDTI rules and SOPs, and other documents that establish the safety program requirements. The completed checklists include review findings. Recommendations are issued when review findings indicate non-compliance. The methods used to perform the review include:

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

The review checklists concentrated on requirements that affect the safety of rail operations and also include elements from National Transportation Safety Board (NTSB) safety advisories to reduce safety hazards and prevent accidents.

5. FINDINGS AND RECOMMENDATIONS

The reviewers and inspectors have concluded that SDTI has a comprehensive SSPP and is effectively implementing the plan.

Review findings identify areas where changes should be made to further improve the SDTI system safety program. The review results are derived from staff activities observed, documents reviewed, issues discussed with management, and inspections. Overall, the review results confirm SDTI is in compliance with its SSPP. The review identified 13 recommendations from the 39 checklists:

1. **Policy Statement & Authority for SSPP (Executive Management Involvement and Commitment to Safety)**

No findings of non-compliance, no recommendations.

2. **SSPP Goals and Objectives**

No findings of non-compliance, no recommendations.

3. **Overview of Management Structure**

No findings of non-compliance, no recommendations.

4. **SSPP Control and Update Procedure**

No findings of non-compliance, no recommendations.

5. **SSPP Implementation Activities and Responsibilities**

No findings of non-compliance, no recommendations.

6. **Hazard Management Process**

No findings of non-compliance, no recommendations.

7. **System Modification Process**

No findings of non-compliance, no recommendations.

8. **Safety and Security Certification**

No findings of non-compliance, no recommendations.

9. **Safety Data Collection and Analysis**

No findings of non-compliance, no recommendations.

10. **Accident/Incident Investigations**

No findings of non-compliance, no recommendations.

11. **Emergency Management Program**

Finding:

1. SDTI has no formal way of showing Corrective Action Plans (CAP)s for drills that are closed.

Recommendation:

1. SDTI should follow up on all after action items from their emergency tabletops and field exercises and track them to closure as required by General Order 164-D, Section 3.2 k.

12. **Internal Safety Audits**

No findings of non-compliance, no recommendations.

13-A. **Operating Rules Compliance**

No findings of non-compliance, no recommendations.

13-B. **Operations Safety Compliance Program Inspection – CPUC Operating Inspector**

Finding:

1. During all EIC job briefings at trackside work zones, EIC's relayed all personnel must be at least 25 feet from the nearest running track to eliminate being in the foul. Staff learned from SDTI Management the current rule, effective 1/15/15, states 15 feet from nearest running track (SDTI RWP 102.1 (e), 102.6 (f)). (See Checklist No. 23, RWP Class Observation).

Recommendation:

2. SDTI should revise the Roadway Worker Protection Program training to be consistent with the approved SDTI Roadway Worker Program Rules 102.1(e) and 102.6(f).

13-C. **Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service**

Finding:

1. Staff examined "Timecard Reports" for three randomly chosen track inspectors from October 1, to December 31, 2014 and determined one track inspector was on duty for more than 12 hours on six separate dates.

Recommendation:

3. SDTI should ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, section 12.04.

13-D. **Rules Compliance: Contractor Safety Program**

No findings of non-compliance, no recommendations.

13-E. **Rules Compliance: Operating Rules and Maintenance**

No findings of non-compliance, no recommendations.

13-F. **Operations Control Center and SCADA**

No findings of non-compliance, no recommendations.

14-A. **Facilities and Station Inspections**

Finding:

1. Facilities Department is inconsistent with its documentation and follow-up of corrective actions originating from Monthly Buildings and Grounds Inspections.

Recommendation:

4. SDTI should develop a mechanism for tracking and following up on reported defects in the Facilities Department (Same as Checklist 14-B recommendation).

14-B. **Facilities and Equipment Inspections: Stations and Emergency Equipment**

Finding:

1. Facilities Department does not have a centralized tracking system for when issues are logged and completed.

Recommendation:

4. SDTI should develop a mechanism for tracking and following up on reported defects in the Facilities Department (Same as Checklist 14-A recommendation).

14-C. **Facilities and Equipment Inspections: Bridges, Tunnels, and Aerial Structures**

No findings of non-compliance, no recommendations.

14-D. **Facilities and Equipment Inspections: GO95 Right-of-Way Compliance**

Finding:

1. The vegetation eastbound on the tracks approximately 300 yards from the 70th Street Station is in close proximity to the OCS wires. This vegetation must be trimmed to be in compliance with General Order 95 Rule 37.
2. A vegetation management violation was found just west of Lemon Grove Station and west of Broadway Street; two trees are touching OCS wires. These trees must be trimmed to be in compliance with General Order 95 Rule 37.
3. At the A Yard at the east of the track, the guy guard is broken and needs to be replaced. The broken guy guard is in violation of General Order 95, Section 56.9 "A substantial marker of suitable material, including, but not limited to metal or

plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, on the outermost guy is required to have a marker.”

Recommendation:

5. SDTI should achieve compliance with General Order 95 Rule 37 violations with its vegetation management non-compliances.
6. SDTI should achieve compliance with General Order 95, Rule 56.9 pertaining to the broken guy guard.

14-E. **Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing**

Finding:

Green Line

1. Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.
2. Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Recommendation:

7. SDTI should maintain the most current Blue Prints in their Signal Cases as required by 49 CFR Part 234.201.A3. (Same Recommendation as Checklist 15-C).

14-F. **Equipment Maintenance Program: Measuring and Testing Instrumentation**

Finding:

1. Numerous tools and equipment from the Wayside department for Years 2012 and 2013 could not be accounted for, nor were there any documentation records of 12 month testing and calibration intervals. The tools and equipment were not found for testing purposes, inspection or location.

Recommendation:

8. SDTI should develop a Standard Operating Procedure for measuring and testing instrumentation calibration which requires records for calibration testing dates, tools in service, assignment, location, or no longer in service.

15-A. **Maintenance Audits and Inspections – Light Rail Vehicles**

Finding:

1. Vehicle#437-amber light not working properly; unable to insert hi-rail RH locking pin.
2. Equipment SS458- missing safety locking pins for Hi-rail attachments; rear work light inoperable; RH turn signal inoperable.

Recommendation:

9. SDTI should ensure that hi-rail vehicles found with defective items are noted, corrected, continue to follow requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D

15-B. **Maintenance Audits and Inspections – Traction Power Inspection**

No findings of non-compliance, no recommendations.

15-C. **Maintenance Audits and Inspections – Grade Crossing Safety Inspection - Signal**

Finding:

Green Line

1. Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.
2. Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Recommendation:

7. SDTI should maintain the most current Blue Prints in their Signal Cases as required by 49 CFR Part 234.201.A3. (Same Recommendation as Checklist 14-E).

15-D. **Maintenance Audits and Inspections – Switch and Turnout Inspection**

Findings:

1. Blue Line: S57 #3 Switch basket rod loose
2. Orange Line: S29A Loose Heel Block; E1722 Spur- junction box, pvc pipe impaired walkway, Standard #3 walkway; obstruction between tie plate and base of rail; loose heel block E27B-guard check 54-3/8", loose gage rods at crossovers, Standard#3 walkway; E25B- loose heel block, Standard #3 walkway
3. Green Line Aerial Section: Some vegetation between Milepost 11.5 – 13.0.
4. Section 2. A: Staff determined SDTI's detailed Annual Turnout Inspection form does not include a measurement for "guard face gauge".

Recommendation:

10. SDTI should comply with G.O. 118-A walkway standards and G.O 143-B, Sections 9.01; 9.12; 14.05.
11. SDTI should revise the Annual Turnout Inspection form to include a "guard face gauge" entry next to "guard check gauge" entry per CFR 49 part 213.143 requirements.
12. SDTI should also conduct detailed turnout inspections to determine the amount of gauge side, guard rail and flange way wear on all of its frogs per CFR 49 part 213.143 requirements.

16-A. **Training and Certification Program: Train Operatos, Controllers, and Line Supervisors**

No findings of non-compliance, no recommendations

16-B. **Training and Certification Program: LRV Maintenance Employees**

No findings of non-compliance, no recommendations

16-C. **Training and Certification Program: Wayside Maintenance Employees**

No findings of non-compliance, no recommendations.

17. **Configuration Management**

No findings of non-compliance, no recommendations.

18. **Local, State, and Federal Requirements**

No findings of non-compliance, no recommendations.

19. **Hazardous Materials Program**

No findings of non-compliance, no recommendations.

20. **Drug and Alcohol Program**

No findings of non-compliance, no recommendations.

21. **Procurement**

No findings of non-compliance, no recommendations.

22. **Personal Electronic Device Use / In-Cab Cameras**

Finding:

1. Staff determined there is no PED observation for Maintenance movements in the yard.

Recommendation:

13. SDTI should randomly monitor maintenance movements in SDTI yard per General Order 172 requirements.

23. **Roadway Worker Protection Program**

No findings of non-compliance, no recommendations.

APPENDICES

- A. Abbreviations List
- B. SDTI 2015 Safety Review Checklist Index
- C. SDTI 2015 Safety Review Recommendations List
- D. SDTI 2015 Safety Review Checklists

APPENDIX A ABBREVIATIONS LIST

| Acronym | Definition |
|----------------|--|
| CAP | Corrective Action Plan |
| CEO | Chief Executive Officer |
| CFR | Code of Federal Regulations |
| SED | Safety and Enforcement Division |
| CPUC | California Public Utilities Commission |
| FTA | Federal Transit Administration |
| GO | General Order |
| ISA | Internal Safety Audit |
| LRV | Light Rail Vehicle |
| MOU | Memorandum Of Understanding |
| MTS | Metropolitan Transit System |
| SANDAG | San Diego Association of Governments |
| SDTI | San Diego Trolley, Inc |
| SOP | Standard Operating Procedure |
| SSPP | System Safety Program Plan |
| T/O | Train Operator |

APPENDIX B
2015 SDTI SAFETY REVIEW CHECKLIST INDEX

| Checklist No. | Element / Characteristic |
|----------------------|---|
| 1 | Policy Statement and Authority for System Safety Program Plan |
| 2 | System Safety Program Plan: Goals and Objectives |
| 3 | System Safety Program Plan: Overview of Management Structure |
| 4 | System Safety Program Plan: Control and Update Procedure |
| 5 | System Safety Program Plan: Implementation Activities and Responsibilities |
| 6 | Hazard Management Process |
| 7 | System Modification Review and Approval Process |
| 8 | Safety and Security Certification |
| 9 | Safety Data Collection and Analysis |
| 10 | Accident/Incident Reporting and Investigations |
| 11 | Emergency Management Program |
| 12 | Internal Safety Audits |
| 13-A | Rules Compliance: Observation and Enforcement – Transportation |
| 13-B | Rules Compliance: Operations Safety Compliance – Transportation |
| 13-C | Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service |
| 13-D | Rules Compliance: Contractor Safety Program |
| 13-E | Rules Compliance: Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions |

| | |
|------|---|
| 13-F | Rules Compliance: Operations Control Center and SCADA |
| 14-A | Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside |
| 14-B | Facilities and Equipment Inspections: Stations and Emergency Equipment |
| 14-C | Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures |
| 14-D | Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance |
| 14-E | Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing |
| 14-F | Equipment Maintenance Program: Measurement and Testing Equipment Instrumentation |
| 14-G | Facilities and Equipment Inspections: Track and Wayside (ROW) |
| 15-A | Maintenance Audits and Inspections: Rail Vehicles (Revenue and Non-revenue) |
| 15-B | Maintenance Audits and Inspections: Traction Power System |
| 15-C | Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance |
| 15-D | Maintenance Audits and Inspections: Tracks and Turnouts |
| 15-E | Maintenance Audits and Inspections: WP&S Quarterly Audit Program |
| 16-A | Training and Certification Programs: Train Operators, Controllers, and Line Supervisors |
| 16-B | Training and Certification Programs: Maintenance Employees |
| 17 | Configuration Management and Control |
| 18 | Local, State, and Federal Requirements: Employee Safety Program |
| 19 | Hazardous Materials Program |

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|----|---|
| 20 | Drug and Alcohol Program |
| 21 | Procurement Process |
| 22 | CPUC GO172 – Personal Electronic Device Prohibitions / In-Cab Cameras |
| 23 | CPUC GO175 – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems |

APPENDIX C
2015 SDTI SAFETY AND REVIEW RECOMMENDATIONS LIST

| No. | Recommendation | Checklist No. |
|-----|---|---------------|
| 1 | SDTI should follow up on all after action items from their emergency tabletops and field exercises and track them to closure as required by General Order 164-D, Section 3.2 k. | 11 |
| 2 | SDTI should revise the Roadway Worker Protection Program training to be consistent with the approved SDTI Roadway Worker Program Rules 102.1(e) and 102.6(f). | 13-B |
| 3 | SDTI should ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, section 12.04 | 13-C |
| 4 | SDTI should develop a mechanism for tracking and following up on reported defects in the Facilities Department | 14-A,14-B |
| 5 | SDTI should achieve compliance with General Order 95 Rule 37 violations with its vegetation management non-compliances. | 14-D |
| 6 | SDTI should achieve compliance with General Order 95, Rule 56.9 pertaining to the broken guy guard. | 14-D |
| 7 | SDTI should maintain the most current Blue Prints in their Signal Cases as required by 49 CFR Part 234.201.A3. | 14-E, 15-C |
| 8 | SDTI should develop a Standard Operating Procedure for measuring and testing instrumentation calibration which requires records for calibration testing dates, tools in service, assignment, location, or no longer in service. | 14-F |
| 9 | SDTI should ensure that hi-rail vehicles found with defective items are noted, corrected, continue to following requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D | 15-A |
| 10 | SDTI should comply with G.O. 118-A walkway standards and G.O 143-B, Sections 9.01; 9.12; 14.05. | 15-D |
| 11 | SDTI should revise the Annual Turnout Inspection form to include a “guard face gauge” entry next to “guard check gauge” entry per CFR 49 part 213.143 requirements. | 15-D |

| | | |
|----|---|------|
| 12 | SDTI should also conduct detailed turnout inspections to determine the amount of gauge side, guard rail and flange way wear on all of its frogs per CFR 49 part 213.143 requirements. | 15-D |
| 13 | SDTI should randomly monitor maintenance movements in SDTI yard per General Order 172 requirements. | 22 |

APPENDIX D

2015 SDTI SAFETY REVIEW CHECKLISTS

| 2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI) | | | |
|--|---|------------------------------|--|
| Checklist No. | 1 | Element | Policy Statement and Authority for System Safety Program Plan: Management Involvement and Commitment to Safety |
| Date of Audit | June 15, 2015 11:00-11:30 | Department(s) | SDTI Senior Management |
| Auditors/ Inspectors | Daren Gilbert Stephen Artus Noel Takahara Mike Borer | Persons Contacted | Paul Jablonski, Chief Executive Officer Wayne Terry , Chief Operations Officer - Rail Rebecca Zelt, System Safety Manager |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>Policy Statement and Authority for System Safety Program Plan: SDTI Senior Management Involvement and Commitment to Safety</p> <p>Interview SDTI's Chief Executive Officer (CEO) and Chief Operating Officer (COO) to discuss:</p> <ol style="list-style-type: none"> 1. Source, frequency, and depth of safety information provided to Senior Management, whether safety is included as a regular topic at SDTI Senior Management meetings, and how safety information is communicated. 2. Methods and incentives included in the management performance system to facilitate a system safety culture within the organization. 3. Formal meetings held and attended by SDTI Senior Management to discuss safety performance, such as ongoing evaluation of | | | |

goals and targets.

4. The CEO's and COO's awareness of high priority safety issues related to operations and capital projects.
5. The CEO's and COO's awareness of the status of all corrective actions generated by the System Safety Department through internal safety and security audits, the hazard management process, accident/incident investigations, or other channels.
6. The System Safety Department's reporting relationship to SDTI's executive and senior management, and management's participation in safety activities.
7. Which individuals and departments are involved in making safety decisions and to what degree senior management is involved?
8. Scope of senior management involvement, coordination, and communication in developing SSPP revisions.
9. Is safety included as a regular topic at Metropolitan Transit System (MTS) Board Meetings and whether SDTI's CEO/COO provides updates and concerns?
10. The process for the periodic review of the resources devoted to safety by MTS CEO and SDTI Executive Management Team.
11. The inclusion of safety responsibilities in job evaluations for managers, supervisors, and employees.
12. Does the CEO visit the Operations Control Center / Operations Department, Light Rail Vehicle Maintenance, Facilities Maintenance, and Wayside Maintenance and speak to rank and file employees to discuss their safety concerns?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Metropolitan Transit System (MTS) Chief Executive Officer (CEO), SDTI's Chief Operating Officer (COO) and SDTI System Safety Manager and determined the following:

1. MTS CEO described SDTI as having a flat organizational structure. MTS CEO and SDTI COO are notified immediately following any major incidents. Rail Operations Control sends incident notifications to all staff, and any important information will normally filter through the

chain of command. MTS CEO stated that KPIs (Key Performance Indicators) are distributed to personnel via newsletters and that they are working on programming a dashboard on their intranet. MTS CEO stated that he participates in monthly formal standing meetings with SDTI COO and SDTI Safety Manager. SDTI Safety Manager provided auditors with examples of meeting notes for several of the monthly CEO meetings. Topics of discussion in past meetings include: ROAR meeting agreements, Accident information, training information, Federal regulatory updates, etc. SDTI COO stated that he also meets with each department individually on a monthly basis. In addition, the SDTI COO stated attendance at weekly Tuesday morning meetings with all department heads.

2. MTS CEO discussed performance evaluations and their performance improvement program (PIP) as an important method to facilitate organizational safety. The SDTI employee excellence program was also discussed. This program offers recognition, luncheons and awards such as a day off with pay to personnel. The criteria to be considered for these awards include accident avoidance, rules conformance, low number of complaints, etc. MTS CEO attends the luncheons and other events.
3. See above item 1
4. MTS CEO is involved in the decision making process for high priority safety related issues and projects. The Blue Line upgrade project and new car procurement project was discussed as examples of SDTI's effort at the highest levels of management to further bring the system into a state of good repair. In addition, the monthly safety briefings from the SDTI System Safety Manager ensure awareness of all safety issues as deemed necessary by the safety manager.
5. The auditors reviewed meeting minutes prepared by the SDTI System Safety Manager for a monthly CEO briefing that included corrective action plan (CAP) and accident information.
6. The SDTI System Safety Manager reports to the SDTI COO. The SDTI COO is effectively the highest ranking position at SDTI. The SDTI COO reports to the MTS CEO. The MTS CEO heads rail and bus transit operations in the San Diego region.
7. MTS CEO states that all employees are involved in making safety decisions. Larger issues requiring resources are handled by management. The weekly department manager meeting was described

as the venue where safety issues can be regularly discussed.

8. MTS CEO states that the SDTI System Safety Manager is responsible for coordinating and communicating with department managers to develop SSPP revisions.
9. MTS CEO states that he can contact the MTS Board Chair when needed. The board is provided with a quarterly briefing report that includes information such as accident trending data. The board is also provided with annual capital projects presentations.
10. Discussion was held regarding annual performance evaluations, Capital Improvement Plan (CIP) process, and the Transit Asset Management Program.
11. Discussion was held regarding the annual performance appraisals. MTS CEO stated that safety is the 1st priority, and that cost-efficiency of operations is 2nd.
12. MTS CEO described his involvement in visiting and speaking with all operations staff and his participation in staff events and awards functions.

Findings:

None

Comments:

None

Recommendations:

None

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|---|------------------------------|---|
| Checklist No. | 2 | Element | System Safety Program Plan: Goals and Objectives |
| Date of Audit | June 15, 2015 09:30-11:00 | Department(s) | SDTI Senior Management |
| Auditors/ Inspectors | Daren Gilbert Stephen Artus Noel Takahara Mike Borer | Persons Contacted | Rebecca Zelt, System Safety Manager |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Goals and Objectives

Interview SDTI Senior Management and review appropriate records to:

1. Determine whether SDTI is making progress towards the ongoing goals and objectives identified in SSPP.
2. Obtain examples of how goals are evaluated (metrics and measures) and review documentation used to track SDTI activities to meet the goals and objectives. For example, if SDTI set a goal of reducing incidents by 10%, has this been achieved? How is this metric tracked and reported?
3. Determine how safety performance is reported to the Chief Executive Officer (CEO) and Chief Operating Officer (COO) or other senior management (i.e., monthly or annual safety reports, quarterly viewgraph presentations, etc.).
4. Make a determination regarding the adequacy of the safety information provided to the CEO. Is the CEO receiving sufficient information to ensure SDTI is meeting its safety goals and objectives? Are rule violations and other key safety metrics being tracked and reported to the COO?

5. Determine whether the stated goals and objectives should be revised.
6. Determine whether management responsibilities are adequately identified for the goals and objectives.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager and determined the following:

1. Discussion was held regarding development and implementation of a near miss reporting program. SDTI System Safety manager coordinates monthly Safety Review Committee meetings and stated that applicable SDTI departments participate. Metropolitan Transit System (MTS) Risk Department is invited and attends when available.
2. SDTI System Safety manager touched on personal injury tracking and rules violations issues that are typically discussed at the weekly senior staff meetings on Tuesdays. System Safety Manager described emergency brake application trending as an important proactive tool to identify locations of potential safety issues. Emergency brake applications are reported by Operators to Rail Operations Control. Rail Operations Control tabulates and provides the data to the System Safety Manager.
3. Discussion was held over the monthly CEO meeting that takes place between the SDTI System Safety Manager, SDTI COO, and MTS CEO. SDTI Safety Manager provided the auditors with several months of meeting notes.
4. The auditors reviewed the meeting notes and found that the information being provided to the CEO and COO on a monthly basis appears to be adequate as an overview of safety related issues taking place on the SDTI system. The monthly meetings provide an adequate venue for the Safety Manager to communicate known safety issues to executive management.
5. The auditors determined stated goals and objectives do not need to be revised.
6. SDTI SSPP section 2.4 states that "Department Superintendents and Managers shall ensure distribution of the SSPP to all personnel directly responsible for meeting its goals, carrying out its objectives, and enforcing its policies." The auditors determined all SDTI department

Superintendents and Managers are responsible, along with the System Safety Manager, to implement the SSPP and ensure safety of operations and projects of the SDTI rail transit system.

Findings:

None

Comments:

None

Recommendations:

None

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---|---|------------------------------|---|
| Checklist No. | 3 | Element | Overview of Management Structure |
| Date of Audit | June 15, 2015 09:30-11:00 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Daren Gilbert Stephen Artus Noel Takahara Mike Borer | Persons Contacted | Rebecca Zelt, System Safety Manager |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>Overview of Senior Management Structure</p> <p>Interview SDTI Senior Management and review appropriate records to:</p> <ol style="list-style-type: none"> 1. Discuss SDTI's process for integrating safety into SDTI operations and maintenance activities. 2. Identify any specific deficiencies in the safety program due to limitations in personnel or resources such as difficulties in maintaining schedules for SSPP updates, completing Internal Safety and Security Audits, or performing Accident/Incident Investigations. 3. Review Safety Committee Meeting minutes from the past twelve months to verify meetings were held according to the requirements in SSPP Element 5.4 (Safety Committee). 4. Does the Safety Department have personnel resources allocated to support interdepartmental coordination on safety issues and concerns? 5. Have SDTI's Safety Department's personnel and resources been cut or increased disproportionately with SDTI's overall budget over the last three (3) years? | | | |

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager and determined the following:

1. Periodic meetings were discussed such as the weekly Department Heads Meeting, Monthly Safety Committee Team Meeting, etc.
2. The SDTI Transportation Department assists the Safety Department due to resource limitations. It is Staff's opinion SDTI's Safety Department appears relatively small when compared to the safety departments of other major California rail transit agencies. At least part of the reason for this may be attributed to the fact that transit work is divided in the San Diego region amongst several organizations (e.g. SANDAG is responsible for major projects and construction, and the separation of Bus and Rail (SDTI) entities under the MTS umbrella provides for further division of tasks).
3. Auditors reviewed several Safety Committee meeting minutes. The minutes indicate that these meetings are taking place in accordance with SSPP requirements on a monthly basis.
4. See item 2 above
5. See item 2 above

Findings:

None

Comments:

Staff notes Safety Department is assisted part-time by Transportation employee however as the MTS system grows as well as Safety Department responsibilities, we suggest additional Safety Department resources may be necessary.

Recommendations:

None

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---|---|------------------------------|---|
| Checklist No. | 4 | Element | System Safety Program Plan: Control and Update Procedure |
| Date of Audit | June 15, 2015 09:30-11:00 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Daren Gilbert Stephen Artus Noel Takahara Mike Borer | Persons Contacted | Rebecca Zelt, System Safety Manger |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>System Safety Program Plan: Control and Update Procedure</p> <p>Interview SDTI System Safety Department and review appropriate records to:</p> <ol style="list-style-type: none"> 1. Verify the required annual SSPP review process is being implemented according to SSPP, Element 4.0 for the last 3 years. 2. Review responsibility for SSPP reviews and comments, and verify SSPP reviews and changes are comprehensive in scope, within required timeframes, and are approved by the designated staff. | | | |
| FINDINGS AND RECOMMENDATIONS | | | |
| <p><u>Activities:</u></p> <p>Staff interviewed the System Safety Manager and found the following:</p> <ol style="list-style-type: none"> 1. The auditors verified the annual SSPP review process is being implemented as required by the SDTI SSPP and CPUC GO 164-D. 2. The auditors note that the SDTI SSPP is continuously being improved and revised by the SDTI System Safety Manager in terms of the | | | |

improvement in its presentation, clarification of rules, and accurate reflection of regulatory changes/requirements. The revisions are submitted to CPUC staff with a request for approval, as required.

Findings:

None

Comments:

None

Recommendations:

None

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|---|------------------------------|---|
| Checklist No. | 5 | Element | System Safety Program Plan: Implementation Activities and Responsibilities |
| Date of Audit | June 15, 2015 09:30-11:00 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Daren Gilbert Stephen Artus Noel Takahara Mike Borer | Persons Contacted | Rebecca Zelt, System Safety Manager |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 9 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Safety Program Plan: Implementation Activities and Responsibilities

Interview SDTI System Safety Department and review appropriate records to:

1. Verify each manager, department, and contractor is charged with responsibility and accountability for SSPP implementation, enforcement, and effectiveness.
2. Identify any challenges each manager, department, and contractor has in performing tasks relating to the SSPP or general safety.
3. Verify management accountability for the performance of safety-related activities, and, if serious or potentially serious deficiencies are found, expand the review to include additional and/or related activities.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interview the System Safety Manager and determined the following:

1. SDTI SSPP section 2.4 states that “Department Superintendents and Managers shall ensure distribution of the SSPP to all personnel directly responsible for meeting its goals, carrying out its objectives, and enforcing its policies.” In addition SDTI Safety Manager notes that the weekly Tuesday manager meetings allow for periodic safety related discussions.
2. SDTI Safety Manager did not note any challenges out of the ordinary.
3. SDTI Safety Manager notes implementation of the efficiency testing program and participation in the periodic meetings to discuss safety and/or security related issues.

Findings:

None.

Comments:

None.

Recommendations:

None.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|--|------------------------------|------------------------------|---|
| Checklist No. | 6 | Element | Hazard Management Process |
| Date of Audit | June 15, 2015 15:30-17:00 | Department(s) | System Safety Department Transportation Department |
| Auditors/ Inspectors | Claudia Lam Dan Kwok | Persons Contacted | Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. SDTI System Safety Program Plan (SSPP) version 9 dated December 2013 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>Hazard Management Process</p> <p>Interview SDTI representatives and review records from the past 3-years to determine whether:</p> <ol style="list-style-type: none"> 1. SDTI is identifying hazards according to the SSPP. Sources may include, but are not limited to: <ul style="list-style-type: none"> ○ Reports and complaints from passengers, field or management personnel; ○ Review of SDTI control center logs and maintenance systems; ○ Monitoring of special orders and speed restrictions; ○ Reports from train operators and line supervisors; ○ Review of Unusual Occurrence Reports; ○ Safety statistics reports; ○ Annual internal safety audits; ○ Facility inspections; ○ Rules Compliance Program, including results from efficiency testing; ○ Results from CPUC Triennial Reviews; | | | |

- Results from accident investigations and trend analysis.
- 2. The System Safety Department maintains a mechanism to capture and track identified hazards through analysis and resolution.
- 3. The System Safety Manager/Transportation Superintendent is reviewing operational hazards to assess severity, and reporting unacceptable hazards to CPUC as specified by the SSPP.
- 4. SDTI has a specified process for reporting hazard resolution activities to CPUC as required by General Order 164-D, Sections 6e and 6f.
- 5. Identified hazards are being evaluated according to the methods established in the SSPP.
- 6. Corrective actions address hazards and identify the department responsible for implementation, and a schedule for completion.
- 7. The System Safety Department follows up on outstanding corrective actions to mitigate or resolve hazards.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager and Transportation and determined the following:

- SDTI identifies hazards through the sources identified in its SSPP.
- SDTI maintains a mechanism to capture and track identified CAPs from accidents and incidents, but has not yet completed one for identified hazards. It is currently being developed.
- SDTI System Safety Manager reviews operational hazards through Monthly Safety Committee Meetings. During the committee meetings, identified hazards are being discussed and evaluated according to its SSPP. Corrective actions resulted from the hazards are addressed to the responsible department for implementation, and schedule for completion.
- During SDTI monthly Safety Committee meeting, Safety Department follows up on any open items/corrective actions to mitigate or resolve hazards.

Findings:

None.

Comments:

SDTI was in the process of developing their spreadsheet to capture and track identified hazards through analysis and resolution as described in its SSPP at the time of the review and anticipates final completion by Fall 2015.

Recommendations:

1. None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---|------------------------------|--|
| Checklist No. | 7 | Element | System Modification |
| Date of Audit | June 16, 2015 11:30-13:30 | Department(s) | SANDAG SDTI Engineering |
| Auditors/ Inspectors | Stephen Artus Daren Gilbert Noel Takahara | Persons Contacted | Michael Diana, Manager of Capital Projects Gabriel McKee, Project Engineer Thang Nguyen, Systems Engineer (Rail) Chip Finch, SANDAG Dale Neuzil, SANDAG John Haggerty, SANDAG |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SANDAG Configuration Management Plan (CMP) dated 2013

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

System Modification

Interview SDTI/SANDAG representatives and review appropriate records to determine whether:

1. The SSPP and referenced or supporting procedures ensure a process exists for addressing safety issues and concerns in system modifications.
2. The Safety Department is involved in assessing/ensuring safety concerns are addressed in system modifications by identifying their specific activities in the process such as documentation participation in testing and inspections and observations performed at work sites.
3. Review three system modification projects implemented and determine if
 - a. The System Modification followed SSPP requirements and

included an evaluation of potential hazards to the system and no unauthorized modifications were implemented.

- b. The hazards were addressed and included an evaluation of potential hazards arising from the proposed modification. (i.e., emails, meeting minutes, sign-offs, inspection checklists, etc.).
- c. Verify any system modification changes are shown in final as-built drawings for the facility, vehicle and/or equipment specifications.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG representatives and determined the following:

1. SANDAG Rail Director discussed Senate Bill 1703, the legislative bill that was enacted to consolidate major capital project functions within SANDAG for the San Diego County Region. Under this legislation, construction projects are generally the responsibility of SANDAG while maintenance improvement projects are generally understood to have remained the responsibility of SDTI. This separation of project work can be unclear at times but is decided in the capital budgeting process. The safety certification process is being applied to major projects such as the current Mid-Coast Corridor Transit project.
2. The project design commenting process was discussed as a process in which the Safety Department can stay involved. A matrix for the Blue Line Crossover project was provided to the auditors showing comments received during the 30%, 60%, and 90% design submittals process. Design development meetings are held as necessary and MTS joins SANDAG in acceptance testing after initial certification. The auditors suggested the CPUC's Rail Crossing Section engineer (K. Schumacher) should be involved early in the process since there are questions regarding the Mid-Coast project aerial station pedestrian crossings. SDTI System Safety Manager chairs the Fire Life Safety Committee for the Mid-Coast Project.
3. The preliminary hazards analysis report has been drafted for the Mid-Coast Project, which led to the subsequent drafting and development of a Site-Specific Hazards Analysis Report to address additional specific right of way concerns. Final signaling as-built drawings for the Blue

Line Crossover project have been provided by contractors to SANDAG/MTS. SANDAG also discussed a project where they have been updating SDTI Orange Line handwritten signal case drawings to AutoCAD and then field checking the information. This project is nearing completion.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|--|--|------------------------------|---|
| Checklist No. | 8 | Element | Safety and Security Certification |
| Date of Audit | June 16, 2015 09:00-11:00 | Department(s) | SANDAG SDTI System Safety Department |
| Auditors/ Inspectors | Howard Huie Daren Gilbert Stephen Artus Noel Takahara | Persons Contacted | Chip Finch, SANDAG Systems Manager Dale Neuzil, SANDAG Senior Systems Project Manager Rebecca Zelt, Safety Manager David Bagley, Transportation Supervisor |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>Safety and Security Certification</p> <p>Interview the SDTI/SANDAG representative(s) involved in the Safety Certification Program (SCP) and review the records of all minor/major projects to determine whether:</p> <ol style="list-style-type: none"> 1. A formal SCP has been submitted by SDTI/SANDAG and approved by the Commission. 2. Each submitted SCP was consistent with General Order 164-D, the SSPP, and applicable reference documents. 3. There has been effective communication with CPUC staff throughout each phase of current and planned projects, including the Preliminary Engineering Design Phase. 4. All design and construction changes were properly documented and addressed in the Safety Certification process. 5. All identified hazards have been eliminated or controlled as required under the SCPs. 6. All certifiable elements for Safety Certified projects during the past three years were identified for the Safety Certification | | | |

Verification Report and submitted to CPUC in a timely manner, according to the requirements of General Order 164-D.

7. SDTI staff in charge of the Blue Line Signaling and Crossover Project follows-up with SANDAG and others as required and have a process in place to mitigate any discrepancies and open items and are tracked in a timely manner.
8. Review documentation to determine if New Starts and major projects undertaken by SDTI/SANDAG:
 - a. Address safety certification management, including organizational authority, responsibilities, and the level of interaction with the Safety Department.
 - b. Identify the process used to verify and document conformance with safety and security requirements during design, construction, testing, and operational readiness.
 - c. Are overseen and approved by FTA and its Project Management Oversight Consultants (PMOCs).
 - d. Is the certification program being administered by the transit agency or a contractor?
 - e. Has a certification committee been created?
 - f. Has a certifiable items list been created?
 - g. Have all designs been reviewed, stamped and sealed by a licensed Professional Engineer?
 - h. Are design changes and conformance exceptions analyzed for safety impacts and documented?
 - i. Have employees been trained if necessary?
 - j. Has a testing program been developed and administered?
 - k. Is the CEO/COO required to formally sign and certify the project complete and safe for operations?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG Engineering and SDTI representative involved in Safety Certification and determined the following:

1. Staff reviewed MTS three capital projects from the past three years: Presidential Conference Cars (PCC) historical cars restoration project,

Blue Line Crossover and Signaling Project, and the Mid-Coast Project.

- a. SDTI submitted the PCC Historical Cars SCP as follows:
 - i. The SCP for PCC historical Car 529 was Commission approved SCP on July 28, 2011. Car 529 was Safety Certified, Final Safety Certification Verification Report (SCVR) was sent to PUC's Safety and Enforcement Director for review and approval, and PUC sent a formal letter in September 2011 accepting Car 529 SCVR. Staff received Car 530 SCVR on January 23, 2015. Formal letter from PUC's Safety and Enforcement Director accepting Car 530 SCVR was sent in February 12, 2015. Car 530 recently underwent a brake pedal reconfiguration which is currently in testing phase right. Completion of Car 530 is scheduled this month and PUC Staff will participate in any Safety re-certification activities.
 - b. SANDAG letter dated April 20, 2011 transmitted the Safety Certification Plan (SCP) for the Blue Line Crossover and Signaling Project for Staff review and Commission approval. The Commission approved the SCP on July 28, 2011. Preliminary Engineering was completed on July 15, 2010.
 - c. Mid-Coast Project's Preliminary Engineering started September 18, 2014. The SCP is currently in its development stage and has not been submitted to staff for review to date.
2. See answers to question 1 above.
3. Staff was presented with various email communications between Staff and SANDAG and/or SDTI for the following projects:
 - a. Blue Line Crossover and Signals Project from October 2012 to present regarding the project status, signal testing, etc.
 - b. PCC Historical Cars 529 and 530 from June 2011 to present with SDTI regarding project status, car testing, etc.
4. SANDAG did not have any vital changes in the Blue Line Crossover and Signals Project to require a SCP change, nor did SDTI require any changes in the SCP for the Car 529 and 530 projects.
5. Identified hazards for SDTI's projects have been addressed as follows:
 - a. The Blue Line Crossover and Signaling Hazard Analysis has been addressed and completed per SCVR dated June 8, 2015, Hazards Matrix, Hazard (Risk) Resolution Conformance. Hazardous items that were found on the project became Safety

Certifiable elements.

- b. The PCC 529 historical car hazards have been completed per SCVR, dated January 23, 2015.
 - c. The PCC 530 historical car is currently being tested and will have SCVR in July 2015.
6. SANDAG did not provide the project SCVR to Staff until one year after the final partial certification was submitted. Staff had given SANDAG an approval letter accepting each individual segment (A-E) as it was completed accepting conformance certificates. Staff letters for acceptance of each individual milestones were as follows: Milestone A dated November 4, 2013, Milestone B dated June 6, 2013, Milestone C dated February 28, 2013, Milestone D was not found in SANDAG's records, and Milestone E dated December 5, 2012.
7. SANDAG's Blue Line Crossover and Signaling Project is complete and there are no open issues or punch list items.
8. Staff reviewed the following documentation for the Mid-Coast Corridor Project:
 - a. Mid-Coast Corridor Safety and Security Certification Plan (SSCP) dated September 18, 2014, Section 1.9.
 - b. Program for Safety and Security Conformance is being developed and will be tracked by those responsible for each task, etc. SANDAG's Senior Systems Project Manager is developing a matrix called Mid-Coast Design and Construction Certificate Tracking 102814. Contractors are responsible for all testing and conformance, Factory Acceptance Tests (FAT), Local Field Acceptance Tests (LFAT), and Systems Integration Tests (SIT). Local Law Enforcement, Local Fire Safety and Security Review Committee (SSRC), and MTS Security are involved with design and provide input at FLSSC meetings. The Safety and Security Certifiable Elements – Matrix divides all design criteria into how it will be addressed via FLSSC, SSRC or SCVR.
 - c. The Mid-Coast Project Management Oversight Contractor (PMOC) reviews the project status and issues at FTA Quarterly meetings and attends Safety and Security Review Committee meetings.
 - d. The Mid-Coast Corridor Project's certification program is partnered between SANDAG with SDTI's Safety Department.
 - e. Safety Certification Review Committee consists of SANDAG,

SDTI, FTA PMOC, FRA, and NCTD.

- f. Mid-Coast Corridor's Certifiable Elements list was created in December 2014 and is currently being updated as needed.
- g. The Mid-Coast Corridor Project is currently at 65% design phase and stamped by a licensed Professional Engineer.
- h. The SSRC identifies conformance issues, variations, and each issue is voted on by the committee. All changes must be by majority vote before approved. Issues which require the Safety Department to address requires a Configuration Changed Request Form followed by an Exhibit E Form as support, which is part of the change package. Staff reviewed samples of various Configuration Change Request Forms and Exhibit E Forms.
- i. The Mid-Coast Corridor Project is in early planning stages; therefore there are no employee training records to review.
- j. The Mid-Coast Corridor Project is in early planning stages; therefore there are no testing procedures developed.
- k. The Mid-Coast Corridor Project will require the signatures of SDTI's CEO and COO in the Final SCVR before revenue operations.

Findings:

None.

Comments:

Although the exact start and end of "preliminary engineering" is not always clear, SDTI and SANDAG are advised to submit SCPs to CPUC as early as possible during preliminary engineering, and before preliminary engineering is completed as required by GO164-D, Section 11 for concerns and comments to be addressed without necessitating redesign or otherwise disrupting project timelines.

Recommendations:

None.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

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|---------------------------------|------------------------------|------------------------------|---|
| Checklist No. | 9 | Element | Safety Data Collection and Analysis |
| Date of Audit | June 15, 2015 13:00-15:00 | Department(s) | System Safety Department Light Rail Vehicle Department Wayside Department |
| Auditors/ Inspectors | Claudia Lam Dan Kwok | Persons Contacted | Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Safety Data Collection and Analysis

Interview the SDTI representative(s) responsible for safety data acquisition and analysis, and review the safety data acquisition and analysis program requirements to determine whether:

1. The data collected includes, at minimum: information concerning SDTI accident and incidents, employee performance failures, equipment failures, procedural deficiencies, derailments and rules violations in SDTI's Yard.
2. The safety data is supplied by, and collected from, all departments, including Operations, Risk Management, and Maintenance, as appropriate.
3. The safety data collected is analyzed and incorporated into SDTI's Hazard Identification and Resolution Process as necessary.
4. The safety data and analyses are made available to SDTI departments for use in planning their safety-related activities.
5. Periodic reporting regarding the results of the safety data analysis is provided to the SDTI Senior Management as appropriate and how this is reported to the FTA's National Transportation Database (NTD).
6. Verify that the quality and integrity of safety data sources identified in

the SSPP are being used, and data analysis and distribution are being implemented as described in the SSPP.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager, and Transportation Supervisor, regarding the Safety Data Collection and Analysis and reviewed relevant program documentation and determined the following:

1. SDTI safety manager provided a spreadsheet that shows the reportable accident data including GIS information and emergency brake application by location. Only Safety Department has access to the master accident spreadsheet and System Safety Manager keeps a separate copy as a backup. During weekly Senior Staff meeting, senior staffs from wayside, security, vehicle maintenance, and safety attended the meeting and discuss safety issues on a weekly basis.
2. Staff reviewed documentation showing SDTI has started analyzing some safety data and incorporates it into its Hazard Identification and Resolution Process since 2015.
3. Beginning in 2015, SDTI started implementing the hazard analysis using "Safety Audit" form for reference. During monthly Safety Committee Meeting, committee analyzes the hazards and makes the decision for hazard identification and resolution process stated in its SSPP. Committee tracks resolution and mitigation during the next meeting to familiarize Staff with using and applying the hazard matrix.
4. Consistent and periodic reporting regarding the safety data analysis results and the issues that need further action are reported by the System Safety Manager to the Chief Operating Officer (COO).
5. SDTI has started to collect station accident data to determine trends, and possible mitigating measures. Also, Safety Manager reports personal injuries data to National Transportation Database (NTD) on a monthly basis.
6. SDTI collects emergency brake application statistics for the safety data analysis and performs periodic trend analysis. According to System Safety Manager, Information Technology (IT) currently tracks the accident data and IT is planning to put together a database in a near future.

Findings:

None.

Comments:

None.

Recommendations:

None.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

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|---------------------------------|--|------------------------------|--|
| Checklist No. | 10 | Element | Accident/Incident Investigations |
| Date of Audit | June 16, 2015 1300-1500 June 18, 2015 1000 - 1200 | Department(s) | Transportation Department System Safety Department |
| Auditors/ Inspectors | Rupa Shitole Howard Huie | Persons Contacted | Brian Riley, Assistant Superintendent of Transportation Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Accident Investigation Procedures (AIP) dated December 2014
(Identified in SSPP).

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident/Incident Investigations

Interview the SDTI representative(s) responsible, and randomly select at least four CPUC-reportable accidents and/or incidents involving an injury or fatality to determine whether:

1. All accidents and incidents were reported to CPUC according to General Order 164-D requirements.
2. All accidents and incidents were reported within two hours of occurrence, as required by General Order 164-D, Sections 7.1 and 7.2.
3. All immediately reportable accident or incident notifications to CPUC contained all the information required by General Order 164-D, Section 7.3.
4. All accidents and incidents were investigated in compliance with

- the requirements of General Order 164-D, Section 8, and the AIP.
5. Video recordings from inward-facing in-cab cameras are reviewed under the required conditions listed in General Order 172, Section 4.3.
 6. Verify if FRA (on joint corridor), National Transportation Safety Board (NTSB), and National Transportation Database (NTD) notifications are made as applicable depending on the incident reporting threshold.
 7. A final report was submitted for each accident or incident according to the requirements in General Order 164-D.
 8. Each final report includes identification of:
 - a. All evidence processed during the investigation;
 - b. Findings of the most probable cause(s);
 - c. Findings of contributory cause(s);
 - d. Corrective Action Plans to address the identified causes with the goal of minimizing the probability of recurrence;
 - e. A schedule for implementing the CAPs, including completion date or plan for monitoring progress on an on-going basis.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager, Assistant Superintendent of Transportation and the Transportation Supervisor regarding the Accident/Incident Investigations for the last 3 years (2013, 2014, & 2015) and reviewed the following records and documentations:

1. All immediately reportable MTS accidents/incidents were reported to CPUC as required by GO 164-D requirements.
2. MTS reports all reportable accidents/incidents per GO 164-D requirements via telephone within the first 2 hours of the incident/accident and then follows up with an email and or text notification to the CPUC representative. Also, if required additional phone calls to CPUC as more information is available as the MTS accident investigation proceeds. MTS Publication Numbers 106.10 (Collisions and Accidents), 106.11 (Accident Investigations involving LRV/Auto or LRV/Pedestrian), 106.12 (Response to injuries/medicinal emergencies (Accidents and Other Incidents)), and 108.10 (Emergency

Call List: SDTI) instructs the Train Operator, Controller, and Line Supervisor, System Safety, Security and Wayside personnel in case of an accident/incident.

3. MTS provides all the initial information per General Order 164-D, Section 7.3 requirements to the CPUC as stated above.
4. Staff randomly selected a few accidents/incidents and these were investigated in compliance with the requirements of General Order 164-D, Section 8, and the MTS Accident Investigation Procedure (refer number 8 below for more details).
5. Staff randomly selected a few accidents/incidents and verified if video recordings from inward-facing in-cab cameras were reviewed per General Order 172, Section 4.3 requirements (refer number 8 below for more details).
6. Staff randomly selected a few accidents/incidents and verified that if applicable FRA, NTSB, and NTD reporting was done depending upon the incident reporting threshold. No deficiencies were noted (refer number 8 below for more details).
7. MTS submitted a final report or an EZ report to CPUC depending on the type of incident/accident as per MTS SSPP Section 10.5.1 (Table 5). Each report included a detailed summary of the overall incident/accident investigation, probable cause(s), contributing cause(s) and corrective action plan if applicable. The below referenced accidents/incidents were reviewed by Staff.
8. Staff reviewed the following immediately reportable accidents/incidents documentation as per GO 164-D requirements:
 - Naples Street (Date of incident February 19, 2015) – Collision Report (Grade Crossing), Photos, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time 4:44 pm, Reported Time to CPUC 4:59 pm, CPUC 60 day EZ Report, NTD Reporting, FRA Reporting, Accident Review Committee Memo & Recommendation, In-cab camera was reviewed as a part of the investigation. Information included direction of train, train number, time, train vs. vehicle, injuries, emergency responders, and tracks down.

- 12th and Imperial Station (Date of incident March 22, 2015) – Collision Report (Grade Crossing), Photos, Email Notification to CPUC, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time 7:44 am, Reported Time to CPUC 8:50 am, CPUC 60 day EZ Report, NTD Reporting, Accident Review Committee Memo & Recommendation, In-cab camera was reviewed as a part of the investigation. Information included train vs. pedestrian, location, train number, injuries, and emergency responders.
- University Avenue (Date of incident August 26, 2014) – Collision Report (Grade Crossing), Photos, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, System Safety Check (LRV Maintenance Department, Hours Of Service), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time 12:41 pm, Reported Time to CPUC 12:51 pm, CPUC 60 day EZ Report, NTD Reporting, Accident Review Committee, Not reportable to FRA since did not met the criteria for reporting, In-cab camera was reviewed as a part of the investigation.
- Old Town Transit Center (Date of incident September 24, 2014) – LRV vs Pedestrian, Time of incident 9:26 pm, RSSIMS Notification Report Time to CPUC: 10:37 pm, Final Accident Investigation Report to CPUC, Collision Report, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, Property Damage Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Coroner Report, Drug & Alcohol Post-Accident Test, Weather Report, NTD Reporting, FRA Reporting, Photos, Accident Review Committee Memo, In-cab camera was reviewed as a part of this investigation.
- West of West Park Grade Crossing (Date of incident December 8,

2014) - Collision Report (Grade Crossing), Photos, Email to CPUC, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, Property Damage Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Coroner Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time 10:02 pm, Reported Time to CPUC 10:12 pm, CPUC 60 day EZ Report (suicide), NTD Reporting, FRA Reporting, Accident Review Committee, In-cab camera was reviewed as a part of this investigation.

- Eastbound Main Track 2 Catenary Poles West of Signal 0-287 (Date of incident September 21, 2013) - Collision Report (Grade Crossing), Photos, Email to CPUC, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, Property Damage Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Coroner Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time: 6:22 am, Reported Time to CPUC 8:15 am, CPUC 60 day EZ Report (suicide), NTD Reporting, Accident Review Committee, In-cab camera was reviewed as a part of this investigation.
- Civic Center Drive Grade Crossing (Date of incident November 19, 2013) Collision Report (Grade Crossing), Photos, Incident Notification Report, Bullet No. 13-03 (speed bulletin), Operating Clearances, Special Report (Operator), Personal Injury Report, Property Damage Report, System Safety Check (LRV Maintenance Department), Cost of Repairs, Highway Crossing Accident Inspections, Police Report, Coroner Report, Drug & Alcohol Post-Accident Test, Weather Report, CPUC RSSIMS Notification Accident Time : 3:35 pm, Reported Time to CPUC 4:14 pm, CPUC 60 day EZ , NTD Reporting, FRA Reporting, Radio communication was reviewed as a part of this investigation since this incident train was not equipped with in-cab camera as per GO 172.

9. Staff also reviewed monthly Form V submittals as required by the CPUC for the following: April 2014, October 2014, December 2014,

October 2012, April 2012, July 2013, and April 2013. No discrepancies were noted.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|------------------------------|------------------------------|---|
| Checklist No. | 11 | Element | Emergency Management Program |
| Date of Audit | June 16, 2015 13:00-15:00 | Department(s) | Security Department System Safety Department |
| Auditors/ Inspectors | Howard Huie Rupa Shitole | Persons Contacted | Edward Musgrove, Manager of TSS Field Operations Manuel Guaderrama, Deputy Director of Transit Security Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SDTI System Security Plan (SSP) dated 2013

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Management Program

Conduct the necessary interviews regarding SDTI's emergency planning, training, and drill/exercise program and review appropriate records prepared during the last three years to:

1. Solicit an overview of the process for SDTI's emergency planning, training, and drill/exercise program and specific examples of coordination with emergency response agencies on emergency planning and drill/exercises
2. Determine the biggest challenges SDTI Safety Department face in coordinating or supporting SDTI's emergency planning process.
3. Verify the process through which emergency responders and other outside agencies are involved in the SDTI emergency planning
4. Verify that a drill/exercise schedule has been created and followed. Determine when the last drill/exercise was performed, if an after

action report developed, and if changes to SDTI's Emergency Familiarization Response and/or procedures were necessary. If changes were necessary, how are these changes communicated to SDTI personnel?

5. Determine if SDTI has held periodic Fire Life Safety meetings, emergency response agency familiarization activities have occurred as scheduled and corrective actions have been implemented.
6. SDTI emergency response training:
 - a. Review training programs to verify they contain training curriculums for emergency response procedures and activities appropriate for each job classification.
 - b. Review training programs to verify frequency of employee emergency response training.
 - c. Randomly select six (6) employees from each safety sensitive job classifications and review their emergency response training records to verify training is documented:
 - a. Train Operators
 - b. Line Supervisors
 - c. Controllers

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Transit Security and Safety Department staff responsible for Emergency Management Program and determined the following:

1. SDTI coordinates with local law enforcement and local fire agencies for emergency drills in the maintenance yard and mainline right of way (ROW). MTS System Security Plan (SSP) and SDTI System Safety Program Plan (SSPP) specify SDTI will perform an emergency drill at the San Diego State University (SDSU) Station and at other location to be determined each year.
 - a. Emergency Drills for Year 2014
 - i. National City Fire Department, February 6, 2014
 - ii. US Customs and Border Protection Field Canine Enforcement, October 6, 2014

- iii. San Diego Police SWAT Tubular Assault/Sniper Exercises, November 14 and 18, 2014
 - iv. San Diego County Sheriff's Department SWAT Training, October 8, 2014
 - v. DHS Visible Intermodal Prevention & Response (VIPR) Team, March 12, 2014.
 - vi. Staff was given a list of future drills to come in 2015, 2016, and 2017.
- b. Emergency Drills for Year 2015
- i. FBI/Marines/Harbor Police Tubular Assault Exercise, February 13, 2015
 - ii. National Football League (NFL) LWA/Private Sector Tabletop Exercises, April 28, 2015
 - iii. County of San Diego Office of Emergencies Services 2015 Cyber Attack and Blackout Regional Countywide Drill, May 20, 2015
 - iv. Rock n Roll Marathon, May 31, 2015.
2. SDTI has accommodated all the outside agencies such as local fire departments and law enforcement but would like to plan more drills from an internal perspective to further train employees in emergency response. SDTI requires funding and resources for drills, and time to identify the employee's weaknesses and enhance employee training.
 3. SDTI's SSPP, Section 11.3 states "This training is available year-round to these agencies and annual participation is encouraged. Additionally, Maintenance-of-Way Department personnel provide San Diego Fire Department with on-site orientation unique stations such as San Diego State University." Under SDTI's 2015 Emergency Drill schedule, the Cyber Attack and Blackout Regional Countywide Drill included Kaiser Permanente, local law enforcement, and local fire departments, which coordinated with SDTI to create and execute the emergency drill. SDTI also has a Three-Year Preparedness Program schedule for: 2015, 2016, and 2017, which identifies the drills and exercises. SDTI, local law enforcement, local fire departments, North County Transit District Coaster and Amtrak collaborate, coordinate, and participate in applicable drills.
 4. San Diego Capstone 2015 Regional Blackout Full Scale Exercise, dated May 20, 2015 was developed in response to the San Diego Gas and Electric major blackout throughout San Diego County on September 9,

2011. When the major blackout occurred, SDTI tested their "Train Stranded at Crossings" procedure Publication Number 106.19. SDTI found their Maintenance of Way Department did not have a formal procedure but only had a verbal procedure to raise the grade crossing gates which stays in a down position during the outages. Publication Number "Power Outage 1.0" dated 05/12/15 was issued and SDTI personnel were retrained to respond to such an emergency. SDTI does not have a formal tracking procedure to identify if Corrective Action Plans (CAP) from drills are closed.

5. SDTI holds Fire Life Safety Committee (FLSC) meetings only for new extensions or projects. There are other meetings where FLSC concerns and issues are discussed.
6. Staff randomly selected six (6) Train Operators (T/O), Line Supervisors, and Controllers to confirm they have completed their emergency response training.
 - a. Memorandum – Train Operator Recertification (24 hour class)
 - i. Memorandum dated January 26, 2012, train classes held January 24, 25, and 26, 2012 identified 11 T/O recertified.
 - ii. Memorandum dated January 24, 2013, train classes held January 22, 23, and 24, 2012 identified 7 T/O's recertified.
 - iii. Memorandum dated December 12, 2014, train classes held December 10, 11 and 12, 2014 identified 6 T/O's recertified.
 - iv. Memorandum dated March 25, 2015, train classes held March 23, 24, and 25, 2015 identified 5 T/O's recertified.
 - v. Memorandum dated May 15, 2015, train classes held May 13, 14, and 15 identified 5 T/O's recertified.
 - b. Memorandum – Line/Yard Supervisor Recertification
 - i. Memorandum dated January 20, 2012, train classes held January 19 and 20, 2012 identified 6 Line/Yard Supervisors recertified.
 - ii. Memorandum dated April 17, 2013, train classes held April 16 and 17, 2013 identified 2 Line/Yard Supervisors recertified.
 - iii. Memorandum dated October 16, 2013, train classes held October 15 and 16, 2013 identified 2 Line/Yard Supervisors recertified. (Only a total of 5 Line/Yard Supervisors were due for recertification for Year 2013.)

- iv. Memorandum dated April 30, 2014, train classes held April 28 and 29, 2014 identified 2 Line/Yard Supervisors recertified.
 - v. Memorandum dated November 17, 2014, train classes held November 12 and 13, 2014 identified 2 Line/Yard Supervisors recertified.
 - vi. Memorandum dated December 5, 2014, train classes held December 4 and 5 identified 2 Line/Yard Supervisors recertified.
 - vii. Memorandum dated April 2, 2015, train classes held April 1 and 2, 2015 identified 3 Line/Yard Supervisors recertified. (Year 2015 is not yet completed. Additional Line/Yard Supervisors may be scheduled for recertification later in the year.)
- c. Memorandum – Controller Recertification
- i. Memorandum dated January 9, 2012, train classes held January 3 and 4, 2012 identified 4 Controllers recertified. (Only a total of 4 Controllers were scheduled for recertification in Year 2012.)
 - ii. Memorandum dated February 20, 2013, train classes held February 19 and 20, 2013 identified 2 Controllers recertified.
 - iii. Memorandum dated March 6, 2013, train classes held March 5 and 6, 2013 identified 2 Controllers recertified. (Only a total of 4 Controllers were scheduled for recertification in Year 2013.)
 - iv. Memorandum dated February 12, 2014, train classes held February 11 and 12, 2014 identified 2 Controllers recertified.
 - v. Memorandum dated March 20, 2014, train classes held March 19 and 20, 2014 identified 2 Controllers recertified. (Only a total of 4 Controllers were scheduled for recertification in Year 2014.)
 - vi. Memorandum dated February 26, 2015, train classes held February 25 and 26, 2015 identified 4 Controllers recertified. (Year 2015 is not yet completed. Additional Controllers may be scheduled for recertification later in the year.)

Findings:

2. SDTI has no formal way of showing Corrective Action Plans (CAP)s for drills that are closed.

Comments:

None.

Recommendations:

1. SDTI should follow up on all after action items from their emergency tabletops and field exercises and track them to closure as required by General Order 164-D, Section 3.2 k.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|------------------------------|------------------------------|-------------------------------------|
| Checklist No. | 12 | Element | Internal Safety Audits/Reviews |
| Date of Audit | June 17, 2015 11:00-12:30 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Claudia Lam Dan Kwok | Persons Contacted | Rebecca Zelt, System Safety Manager |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
3. SDTI Audit Schedule 2012-2015

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Internal Safety and Security Audits (ISSA)/Reviews

Interview the SDTI representatives involved in ISSAs, and review appropriate records to:

1. Determine if a three-year internal audit schedule was developed and submitted to CPUC.
2. Verify that all 21-SSPP elements were evaluated within a three year period.
3. Verify CPUC was notified 30 days in advance of the scheduled audit via a letter and or an email and a draft checklist was submitted along with it.
4. Verify each audit lists the involved appropriate SDTI departments, the safety-related activities addressed, and the reference criteria for the audit.
5. Determine whether the ISSAs adequately address interdepartmental and interagency communication issues, and whether or not SDTI has a process for addressing departments' non-responsiveness and failures to implement audit recommendations.
6. Determine how expertise for auditing specific functions is

evaluated, and how personnel are assigned per the SSPP to ensure ISSA quality. An example of a function is signal inspection.

7. Verify audits have been properly documented, included references for documents, activities reviewed, criteria for evaluation, and notes to support findings and recommendations.
8. Verify Annual Reports are accompanied by letters from the Chief Executive Officer (CEO) stating SDTI's compliance status with its SSPP and Corrective Action Plans for non-compliant elements
9. Verify Corrective Actions from the internal safety audit process were scheduled, tracked, and implemented.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager, and reviewed annual internal safety audit program documentation prepared during the last three years and determined the following:

1. SDTI submitted a three-year internal safety audit schedule to the CPUC designated representative to SDTI identifying the SSPP elements that will be covering during Years 2012-2014.
- 2, 3. SDTI evaluated all 21-SSPP elements they identified in the 3-year schedule and covered all the required elements in the 3-year cycle.
- 4, 7. SDTI Systems Safety Manager provided the internal safety audit reports and reports were sufficiently documented and included reference to documents supporting findings and recommendations.
- 5, 6. SDTI utilizes the expertise of CPUC staff to observe the auditing to ensure the quality of internal safety audits. Also, CPUC inspectors have been performing random inspections which help ensure the quality of specific functions such as signal inspection. SDTI System Safety manager is required to complete training such as Transit Safety and Security Program (TSSP) offered by Transportation Safety Institute.
8. SDTI submitted the internal safety audit reports to CPUC designated representative under the signature of the Chief Operator Officer. Cover letters stated compliance with SSPP requirements.

9. SDTI System Safety Manager demonstrated the spreadsheet which tracks corrective actions from internal safety audit process, schedule and implementation.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---------------------------------------|------------------------------|--|
| Checklist No. | 13-A | Element | Rules Compliance: Observation and Enforcement |
| Date of Audit | June 8-12, 15-18, 2015 07:00-17:00 | Department(s) | Transportation Department |
| Auditors/ Inspectors | Debbie Dziadzio | Persons Contacted | Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Rail Rule Book, Revised: September 2013

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Observation and Enforcement

Interview the appropriate SDTI representatives and review appropriate records to:

1. Verify that SDTI performs formal observations of Controllers and Train Operators as specified the SSPP and/or supporting procedures. Accompany a Supervisor during compliance checks, assess how compliance checks are conducted, and ensure that final report matches field findings
2. Verify that SDTI performs observation of Maintenance Employees as specified in the SSPP and/or supporting procedures. Interview operations and maintenance supervisory staff to determine their familiarity with rules and procedures and how they monitor employee compliance with rules and procedures.
3. Review documentation to verify Supervisors are citing operating and maintenance personnel for rule violations. Conduct a random sample

inspection of transit operators to determine if they are carrying their rulebook, if they have the proper safety equipment in their cabs, and if their radios are functioning

4. Verify operations and maintenance employees are evaluated based on their performance during unannounced observations to assess their compliance with safety rules, procedures, and/or practices. Conduct random interviews of operators and mechanics to verify how often they receive training on rules and procedures and how the transit agency monitors their compliance with rules and procedures
5. Determine whether any accidents/incidents were determined to have resulted from inadequate operations procedures and verify appropriate Corrective Action Plans (CAPs) were implemented in response.
 - a. If accidents/incidents required a CAP, verify what steps were implemented (i.e., employee retraining, suspension, dismissal, etc.).
6. Determine how SDTI performs efficiency testing of operating and maintenance personnel and verify CAPs are implemented when appropriate
7. Verify the SDTI Safety Department receives reports from Operations and Maintenance Departments regarding rules compliance assessment and testing. Are hazards identified from the rules compliance process, reported to Safety, and tracked through the Hazard Management Process?
8. Select standard operating procedures (4 or 5) and ride the SDTI system to verify rules are followed (such as horn signaling, any speed restrictions, end of line vehicle inspections, etc.).

FINDINGS AND RECOMMENDATIONS

Activities:

1. Staff accompanied SDTI Line Supervisor to observe compliance checks of several Train Operators on the Blue, Orange, and Green Lines. Staff reviewed SDTI form 108, Train Operator Efficiency Check list utilized by Line Supervisors to record observations for compliance to CPUC General Orders, SDTI Operating Rules, and Federal Regulations. Staff reviewed SDTI memorandum dated 11/9/12 regarding Efficiency Testing on Train Operators. Staff reviewed SDTI memo dated 6/17/11

and 49 CFR 217.9 (b) (iv) regarding Train Controller operating efficiency and testing. Staff then reviewed Excel spreadsheet utilized by Central Control Supervisors to relay and track compliance to General Orders, Operating Rules and Federal Regulations.

2. Staff interviewed Operations and Maintenance Supervisors and found SDTI to be well versed in SDTI Operating Rules, General Orders, and Federal Regulations. Staff reviewed LRV Maintenance Facility Inspection forms and determined Maintenance personnel are monitored for compliance to rules and procedures.
3. Staff reviewed documentation at Operations Control Center, Operations, and Maintenance to determine if Supervisors' are citing personnel for rules violation. Staff reviewed documentation for non-compliance and violations and found discipline to be in compliance to SDTI SSPP, SOP's, General Orders, SDTI's Operating Rules, and Federal Regulations. Staff observed and inspected 15 Train Operators (T/O) while riding SDTI's system between June 9-19, 2015. All T/O's had in their possession the mandated equipment while on duty (i.e. SDTI Operating Rule Book, Itinerary, Operating Clearances, ID Pass, Qualification card, working watch, flashlight, proper uniform, etc).
4. Staff interviewed several SDTI personnel from Operations, Operations Control Center, LRV Maintenance facility, Roadway Worker Program (RWP) workers regarding unannounced observations by supervision, disciplinary procedures, training requirements. All personnel were aware of training requirements and rules compliance.
5. When an accident/incident occurs due to inadequate operations procedures found in a accident investigation, the information is relayed to the Superintendent of Operations who ensures all information is communicated to Senior Staff (during weekly meetings), and during Major Incident Review Committee (MIRC) meetings.
6. Staff accompanied Line Supervisor during covert and non-covert observations of T/O's regarding rules compliance, reviewed SDTI's SSPP, various SOP's, and employee files to verify Correction Action Plans are implemented where appropriate.
7. Safety Department receives information regarding compliance assessments from Operations but currently does not receive information from the Maintenance Departments not required by SDTI's program. IF/WHEN there is non-compliance in any SDTI operating area, the information is relayed immediately via e-mail from

Superintendent of Operations to Senior Staff, including Safety Department, and is included in weekly informational meetings.

8. Staff rode the entire SDTI system between June 9-19, 2015 and found compliance to operating Rules 2.1.18 Slow Zones, 3.5.2 Headlights displayed, 3.9.4 Securing Cab, 3.17.3 Train into station, 4.1.1 Horn signals, 4.12.1 Stop Signals, 5.4.3 Door Malfunction, 6.2.1 Announcements.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---------------------------------------|------------------------------|--|
| Checklist No. | 13-B | Element | Rules Compliance: Operations Safety Compliance |
| Date of Audit | June 8-12, 15-18, 2015 07:00-17:00 | Department(s) | Transportation Department |
| Auditors/ Inspectors | Debbie Dziadzio | Persons Contacted | Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 172
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI Rail Rule Book, Revised: September 2013
5. SDTI Roadway Worker Protection (RWP) Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Safety Compliance

Interview SDTI representatives responsible for Operations, perform random observations and operations inspections, and review appropriate records to determine whether:

1. Maintenance Workers:
 - a. Know and understand applicable wayside safety rules;
 - b. Comply with the Personal Electronic Device (PED) Rules when performing any duties on or near railways;
 - c. Know and understand the rules and procedures for mainline operations.
2. Train Operators:
 - a. Are in compliance with the applicable rules and procedures ;
 - b. Comply with PED Rules while inside operator cabins;
 - c. Are properly trained and knowledgeable in handling

accident/incidents and emergency response situations, and coordinating with Operations Control Center during an incident

3. Controllers:
 - a. Are properly preparing and maintaining records, reports, and logs;
 - b. Perform duties in accordance with standard operating procedures, rule books, and bulletins;
 - c. Are trained and knowledgeable in dealing with accidents/incidents and emergency response situations, and coordinating with SDTI personnel and other agencies during the same.

Randomly select 10% Wayside staff, 10% Controllers, 10 % train operators, and 10% Line Supervisors, and perform ride-along or on-site inspections to verify their compliance with applicable rules, that they have the proper safety equipment, radios are functioning, and they comply with the PED policy.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Superintendent of Transportation and Assistant Superintendent of Transportation and determined the following:

1. Roadway Workers
 - a. Staff approached 6 different roadway workers and received proper job briefings that included work limits, forms of protection, work zone, safety zone, PED compliance, Personal Protective Equipment (PPE) utilized.
 - b. Staff observed compliance at 5 different work sites and non-compliance at 1 work site.
 - c. Staff observed redundant RWP protection via speed restriction set-ups utilizing speed discs, Flaggers, Operating Clearances, radio communication between EIC and LRV operating cab.
2. Train Operators
 - a. Staff observed Train Operators (T/O) are in full compliance to CPUC

General Orders, SDTI Operating Rules, and Federal Regulations.

b. Staff observed compliance to General Order 172 regarding Personal Electronic Devices.

c. Staff interviewed several T/O's to determine knowledge of accident/incident and emergency response responsibilities.

3. Controllers

a. Staff reviewed Controller Logs, Unusual Occurrence Logs, Radio Logs.

b. Staff observed Controllers during turn-over and while operating at their stations to determine compliance to SDTI SOP's, Operating rules and procedures, bulletins.

c. Staff interviewed 4 Controllers to determine knowledge of accident/incident and emergency response responsibilities and coordination with SDTI personnel and various other agencies.

During Staff's time at Operations Control Center, Staff observed compliance to applicable rules and procedures regarding operations, radio procedures, PED compliance. See #1 for Wayside Staff, See 13-A for T/O's and Line Supervisors.

Findings:

1. During all EIC job briefings at trackside work zones, EIC's relayed all personnel must be at least 25 feet from the nearest running track to eliminate being in the foul. Staff learned from SDTI Management the current rule, effective 1/15/15, states 15 feet from nearest running track (SDTI RWP 102.1 (e), 102.6 (f)). (See Checklist No. 23, RWP Class Observation).

Comments:

None.

Recommendations:

1. SDTI should revise the Roadway Worker Protection Program training to be consistent with the approved SDTI Roadway Worker Program Rules 102.1(e) and 102.6(f).

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--|------------------------------|---|
| Checklist No. | 13-C | Element | Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service |
| Date of Audit | June 9,10, 2015 (LRV) June 12, 2015 (Transportation) June 16, 2015 (Signal) June 18, 2015 (Track) 11:00-13:00 | Department(s) | Transportation Department Wayside Department LRV Maintenance Department |
| Auditors/ Inspectors | Mike Borer, Adam Freeman, James Matus (LRV) ----- Debbie Dziadzio (Transportation) ----- Heidi Estrada (Signals) ----- Kevin McDonald, John Madriaga (Track) | Persons Contacted | Andy Goddard, Superintendent of LRV Maintenance Mel Bickman, Assistant Superintendent of LRV Maintenance ----- ----- Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation Jennifer O’connell, Lead Assignments ----- Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. General Order 143-B, Rule 12.04 Hours of Service-Safety Sensitive Employees
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operator, Controller, and Maintenance Personnel Hours of Service

Select at least 10% safety-sensitive employees at random from each of the following classifications:

- Controller
- Train Operator
- Track Inspector
- Signals Inspector
- LRV Maintainer
- Flag person/Look-out
- Supervisors

Inspect the employees' time cards for a three-month period during the past 18 months to determine whether:

1. Shifts were in compliance with the requirements for safety-sensitive employees not remain on duty for more than 12 consecutive hours, or for more than 12 hours in any 16 hour period.
2. Each initial on-duty status was preceded by eight consecutive hours of off-duty status.

FINDINGS AND RECOMMENDATIONS

Activities:

A. Transportation Department

Staff interviewed Superintendent of Transportation and Assignments Desk Supervisor and determined the following:

Staff reviewed Hours of Service records for 95 Train Operators (T/O), 12 Train Controllers, 10 Line Supervisors, 5 Yard Supervisors, and 55 Part-Time Train Operators for the time period 12/18/14 through 4/25/15. Staff found no

employee had on-duty time over 12 hours and all employees had at least 8 hours rest prior to a workday/workshift per General Order 143-B, Section 12.04

Findings:

None.

Comments:

Staff determined SDTI has no formal Hours of Service Policy notated in their SSPP rev.10 dated December 2014, nor in a Transportation Standard Operating Procedure (SOP). Also there is no operating rule that governs SDTI Train Operators to notify Operations Control Center (OCC) when their on-duty time exceeds certain criteria. SDTI Transportation Management produced a Memorandum dated 10/20/08 authored by Superintendent of Transportation, advising all Transportation Department Personnel of the requirements regarding GO 172. Staff was advised GO172 is covered in the Orientation Training for new T/O's and the Memorandum copy is placed in the T/O's training manual. However, Staff determined, by inquiring with seasoned T/O's, the Hours of Service mandates are not covered in the bi-annual recertification classes all T/O's are required to pass. Staff believes a formal Hours of Service Policy in SDTI's SSPP is warranted as well as either an operating rule (that governs all safety sensitive personnel) be implemented into SDTI's Operating Rules book or an SOP, and included in SDTI's bi-annual recertification.

Recommendations:

None.

B. Light Rail Vehicle Maintenance Department

Staff interviewed Superintendent of Light Rail Vehicle (LRV) Maintenance and Assistant Superintendent of LRV Maintenance and determined the following:

1. Staff reviewed SDTI's employees' time cards/timesheets in the maintenance department division for accuracy in determining the documentation of hours worked. Staff reviewed SDTI's procedures of documenting hours worked by each employee showing initial on-duty status was preceded by eight consecutive hours of off-duty status.

2. LRV maintenance personnel timesheets were reviewed by CPUC staff for any violations as well as proper documentation. (LRV) maintenance timesheets showed the times employees clocked in and out for the eight hour work day as well as any overtime for that specified day.
 - a. SDTI's policy will allow employees to clock in early, but will not allow an employee to clock in no earlier than fifteen minutes before the shift.
 - b. Lunch breaks are documented on the timesheets as well as overtime hours.
 - c. Leave status or vacation status is also documented on an employee's time sheet.
 - d. No violations were reported by CPUC staff and each initial on duty status was preceded by eight consecutive off duty hours.

Findings:

None.

Comments:

SDTI's LRV Department timesheet documentation policy demonstrates the ability to properly document employee's hours of service and is readily available to review and determine if any employee working overtime which could lead to a violation of hours of service. SDTI's documenting procedures demonstrates SDTI's ability to show time off/leave from work, and tracks if employees have missed critical training criteria.

Recommendations:

None.

C. Wayside Department (Signals)

Staff interviewed the Superintendent of Wayside Maintenance and Assistant Superintendent of Wayside and determine the following;

Staff reviewed five signal inspector employee records to determine if Hours of Service was compliant with GO143-B, Section 12.04 requirements. Staff found all five signal inspectors did not work beyond the 12-hours of service requirements.

Findings:

None.

Comments:

None.

Recommendations:

None.

D. Wayside Department (Track)

Staff interviewed Superintendent of Wayside and Manager of Track and Structures for track inspectors and flag persons hours of service and determined the following.

Findings:

Staff examined "Timecard Reports" for three randomly chosen track inspectors from October 1, to December 31, 2014 and determined one track inspector was on duty for more than 12 hours on six separate dates:

Track Inspector # 10220

10-11-14 15.00 hours; 11-08-14 13.50 hours; 11-13-14 13.50 hours; 11-15-14

13.00 hours; 11-17-14 14.50 hours; 11-22-14 12.50 hours.

Staff examined random flag person "Timecard Reports" from October 1 to December 31st 2014 and found nine flag persons were on duty for more than 12 hours.

Flag person # 012995

10-1-14 12.25 hours; 10-2-14 12.12 hours

Flag person # 013140

10-1-14 12.25 hours; 10-2-14 12.12 hours

Flag person # 013109

10-1-14 12.14 hours; 10-2-14 12.16 hours

Flag person # 013322

11-3-14 12.25 hours

Flag person # 011672

11-3-14 12.28 hours

Flag person # 011819

11-3-14 12.28 hours

Flag person # 011935

11-3-14 12.28 hours

Flag person # 013320

12-11-14 12.42 hours

Flag person # 013166

12-11-14 12.42 hours

Comments:

The effect of working past established hours of service has been documented in numerous studies. Employees on duty past established hours of service are prone to more frequent accidents and injuries.

Recommendation:

1. SDTI should ensure Safety Sensitive Employees are not on duty more than 12 consecutive hours, as required by General Order 143-B, section 12.04.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|----------------------------|---|--------------------------|---|
| Checklist No. | 13-D | Element | Rules Compliance: Contractor Safety Program |
| Date of Audit | June 15, 2015 13:00-14:30 (LRV) June 18, 2015 10:00-12:00 (Transportation) | Department(s) | Operations Department System Safety Department SANDAG Engineering and Construction Department Light Rail Vehicle Department |
| Auditors/Inspectors | Adam Freeman James Matus (LRV) ----- Debbie Dziadzio (Transportation) | Persons Contacted | Andy Goddard, superintendent of LRV Maintenance Mel Bickman, Assistant Superintendent of LRV Maintenance ----- Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation Judy Bannister, Right of Way Engineer Ramon Ruelas, SANDAG |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Contractor Safety Program

Interview the SDTI representative responsible for the Contractor Safety Program and review documentation to determine whether:

1. SDTI has a contractor safety program establishing responsibilities and requirements including:
 - a. Training and certification for contractors and their employees.

- b. The rules, regulations, and procedures applicable to contractors and their employees.
- 2. SDTI's procedures and practices clearly identify SDTI is ultimately in charge on its system, and that contractors and their employees must comply with all established safety rules and procedures.
- 3. SDTI standard operating procedures establish the range of activities for monitoring Contractors and their employees, and enforcing compliance with safety requirements through regular unscheduled and unannounced compliance checks, and scheduled periodic audits and inspections of construction sites to monitor compliance with its safety requirements.
- 4. The Safety Department, and SANDAG Engineering and interagency coordination resulted in construction plan reviews, site inspections performed, reviewed and approved contractor safety plans, and ensured contractors operate in compliance with SDTI Operating Rules and Procedures Manual.
- 5. SDTI's monitoring and enforcement activities are properly recorded, distributed, and filed.

FINDINGS AND RECOMMENDATIONS

Activities:

A. Transportation Department

- 1. Staff interviewed SDTI Right-of Way (ROW) Engineer and Senior Management and determined SDTI has a training program for contractors working on SDTI property/territory. SDTI contracts with a 3rd party (JL Patterson) for Contractor Roadway Worker Program (RWP) training and audits classes.
 - a. RWP classes are every Tuesday afternoon and duration is 4 hours. ROW Engineer and Training/Safety Personnel oversee the contractor program and certification. Staff reviewed SDTI ROW Engineer excel spreadsheet database to ensure all contractors operating on SDTI property are currently RWP certified in accordance to General Order 175. Certified Contractors are listed on SDTI website.
 - b. All CPUC General Orders, Carrier Rules, and Federal Regulations

are applicable to all contractor employees and personnel working on SDTI property/territory.

2. Staff reviewed "Welcome Letter to Contractors" on work bid contract that clearly states SDTI is ultimately in charge on its system. Staff reviewed SANDAG paperwork outlining RWP Certification, SDTI RWP 102.2 (a) confirms all contractors must follow all SDTI on-track procedures.
3. Staff reviewed SANDAG Resident Engineer's Daily Report inspection documentation for construction sites including various checklist items such as flagger certification, speed restrictions including on-track protection Personal Protective Equipment (PPE), Personal Electronic Device (PED) compliance. Staff requested SDTI Management and received the complete documentation of a contractor working on SDTI's system who did not have authority or protection. Contractor was advised to remove their worker's from SDTI system. Contractor immediately scheduled RWP class for the worker's.
4. Safety Department will review construction plans with SANDAG Engineering. Currently, SANDAG does not relay site inspections performed and reviewed, approved contractor safety plans, and ensure contractors operate in compliance with SDTI Operating Rules. Actual practice is SANDAG and SDTI Engineering review contractor plans, and the SDTI ROW Engineer ensures all contractors are qualified to operate on SDTI system. All non-compliance issues are relayed to Safety Department via weekly Senior Management meetings.
5. Staff reviewed over 20 examples of SDTI RWP Compliance Testing forms performed by various Line Supervisors. Compliance checklist consists of various SDTI Operating and SDTI RWP rules. Staff reviewed employee files when non-compliance was observed to determine correct follow-up per SDTI SOP's and General Orders.

Findings:

None

Comments:

None.

Recommendations:

None.

B. Light Rail Vehicle Maintenance Department

Staff interviewed Superintendent of Light Rail Vehicle (LRV) Maintenance and Assistant Superintendent of LRV Maintenance in regards to SDTI's procedures and responsibilities with their contractor safety program.

Staff reviewed training records for contractors and SDTI's re-certification process in the specified training areas. The training criteria Staff reviewed for contractors included:

- 1) Lock out tag out.
- 2) Blue flag protection.
- 3) (PED) personal electronic devices.

SDTI's contractor safety program includes initial training before any contractor can work.

- 1) SDTI's zero tolerance policy for Personal Electronic Devices (PED) is the same for contractors as it is for their own employees.
- 2) SDTI's Standard Operating Procedure 101.27 (Use of personal electronic devices while on duty) outlines the policy to which contractors are trained on.
- 3) SDTI's contractor safety program also includes training for all contractors in the SOP for blue flag protection.
- 4) Training for red tag lock out tag out procedures.
- 5) Interviews with Superintendent of Light Rail Vehicle (LRV) Maintenance and Assistant Superintendent of LRV Maintenance demonstrated to staff SDTI's responsibility to properly document contractors trained in SDTI's contractor safety program.

Findings:

None.

Comments:

SDTI's contractor safety program demonstrates an effective strategy to make

sure initial training occurs for all contractors permitted on property. SDTI PED zero tolerance policy demonstrates SDTI's ultimate holding contractors accountable at the same level as their own employees once training is accomplished.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|-----------------------------|--|--------------------------|--|
| Checklist No. | 13-E | Element | Rules Compliance: Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions |
| Date of Audit | June 15, 2015 13:00-15:00 ----- June 16, 2015 10:30 – 12:00 | Department(s) | System Safety Department Transportation Department LRV Maintenance Department Wayside Department |
| Auditors/ Inspectors | Debbie Dziadzio (Transportation) ----- Kevin McDonald John Madriaga (Wayside) | Persons Contacted | Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation Edward Graham, Central Control Supervisor Rebecca Zelt, System Safety Manager ----- Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

**Rules Compliance:
Operating Rules and Maintenance Procedures Manual and Operations Bulletin Revisions**

Interview SDTI representative responsible for operations rules and procedures, maintenance procedures, and review necessary documentation to determine whether:

1. The Standard Operating Procedures, the Maintenance Procedures and all active Operating Bulletins are reviewed, revised systematically and distributed to the relevant personnel. Discuss the process used to

review and update rules and procedures.

2. The results of each review of the Standard Operating Procedures, the Maintenance Procedures and Operating Bulletins are documented in a memorandum to file, providing a summary of the results and the appropriate manager's determination whether revisions are needed.
3. All Operating Bulletins were approved by the Operations Superintendent with concurrence of affected departments if applicable.
4. Operating Bulletins were issued to personnel in a timely manner.
5. An employee record of all Operating Bulletins issued, and received
6. Active Operating Bulletins are posted in specified locations, and inactive bulletins are removed in a timely manner.
7. CPUC Staff received all new operating rules and bulletins during the past 12 months, and issuance was tracked.
8. Does SDTI Safety Department conduct assessments to evaluate safety-related impacts to rules changes and bulletins?
9. Interview SDTI Safety Department representatives to determine when rules and procedures were last reviewed (certain rules and procedures should be reviewed after accidents) and revised.
10. Conduct interviews with SDTI Safety Department representatives to discuss their role in ensuring that safety concerns are addressed in SDTI's rules compliance program.
11. Does the Safety Department representative support any rules compliance activities?
12. Does the Safety Department representative receive reports from the SDTI's operations and maintenance departments regarding the performance of rules checks, assessments, and testing?
13. Are hazards identified from the rules compliance process and reported to SDTI Safety Department and managed through the hazard management process?

FINDINGS AND RECOMMENDATIONS

Activities:

A. Transportation Department

Staff interviewed the Superintendent of Transportation, Assistant

Superintendent of Transportation, Operations Control Center Supervisor, and System Safety Manager and determined the following:

1. An Operating Bulletin is issued January 1 each year advising Bulletins that are in effect (the expired bulletins are removed and stored for a minimum of 3 years for CPUC review). There is a check-off list in the Assignment Office, where Train Operators are required to report for duty, to receive all Operating Bulletins dated January 1. There are clipboards throughout SDTI property (i.e. Central Control, Assignment Office, Crew Rest Area, Maintenance areas) that identify the current Operating Bulletins in effect. The updates and review process occurs during the weekly meetings held for representatives from Wayside, Operations, Marketing, Planning, SANDAG, Resident Engineer, Safety and also, if necessary, during the weekly Senior Management meeting as well as the Major Incident Review Committee (MIRC).
2. Please see #1 above.
3. Operations Superintendent signs off on all Operation Bulletin reviews and approvals.
4. Operation Bulletins on date of issue is sent to all SDTI Management via emails and placed into the Train Operator mailboxes. SDTI Management in other departments, (i.e. Central Control, Maintenance) will relay Operation Bulletin information to personnel.
5. All personnel have their record (book) checked during bi-annual recertification. Operation Bulletins are inspected to ensure current bulletins are in personnel's possession.
6. Current Operating Bulletins are located on clipboards in the Assignment Office, Chief Operations Officer, Transportation Superintendent's Office, Operations Control Center, etc.
7. Staff confirmed SDTI sends new operating rules and bulletins to CPUC designated Agency Representative.
8. Impact to rule and bulletin changes are assessed in several ways. SDTI weekly meetings, monthly Safety Committee meetings, Union Reps for Train Operators and Supervisors, form Special Report. Safety will gather all information received through various measures to assess changes and relay information during SDTI Senior Management meetings.
9. Staff interviewed System Safety Manager and determined SDTI has an Accident Review Committee (to determine Corrective Action Plan

(CAP) or rules review after an accident/incident), Senior Staff reviews video, all pertinent personnel, including Train Operators, review all aspects during Accident Review to determine rules review and changes, if necessary.

10. Safety Department is a strong representative of Senior Staff at SDTI. Any safety concerns are addressed during various weekly meetings.
11. The System Safety Manager supports any rules compliance issues.
12. System Safety Manager receives information regarding compliance/non-compliance to chart and track trends.
13. See Checklist #6

Findings:

None

Comments:

None.

Recommendations:

None.

B. Wayside Department

Staff interviewed Superintendent of Wayside Maintenance and Manager of Track and Structures in regards to track maintenance procedures and reviews of same for the past triennial period.

Findings:

Staff determined that per section 1. As described above, SDTI track maintenance procedures based on CFR 49 part 213 are not being systematically reviewed or revised.

Comments:

SDTI track maintenance procedures are taken directly from CFR 49 part 213. The Department of Transportation's Federal Railroad Administration, publishes a pocket size version of part 213 that is customarily used by track maintenance personnel. This pocket sized version is only re-published every few years with any changes or additions. However, on the Federal Railroad

Administration's website is the complete text of CFR 49 part 213, which is far more comprehensive in its description of track safety standards than the pocket version. During this checklist interview, staff found that neither the Superintendent of Wayside Maintenance nor the Manager of Track and Structures were aware of the existence of the comprehensive part 213 track compliance manual that is available on the FRA website. Staff believes track maintenance personnel should not only be aware of this online document, but should be regularly using it, rather than the pocket version, to shape SDTI track maintenance procedures. Not only is the online version more comprehensive, *it is updated and revised much more frequently* than the pocket version that is only re-published every few years.

Since SDTI track maintenance procedures are taken directly from CFR 49 part 213, regular *review* of these procedures should be done by examining the online track compliance manual.

Recommendations:

1. SDTI's Wayside Department should be regularly reviewing the Federal Railroad Administration's "Track and Rail and Infrastructure Integrity Compliance Manual: Volume II-Chapter 1-Track Safety Standards-Classes 1 through 5" online as required by General Order 143-B, Section 14.05 These procedures should then be passed on to all track workers via in service training.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--------------------------------|------------------------------|--|
| Checklist No. | 13-F | Element | Rules Compliance: Operations Control Center & SCADA |
| Date of Audit | June 15, 2015 15:00-17:00 | Department(s) | System Safety Department Transportation Department |
| Auditors/ Inspectors | Debbie Dziadzio Howard Huie | Persons Contacted | Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation Edward Graham, Central Control Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Rules Compliance: Operations Central Control & SCADA

Interview SDTI representatives responsible for operations rules and procedures and review necessary documentation to determine whether:

1. The OCC Manual is reviewed and revised, as necessary, on an as needed basis.
2. Revisions to the OCC Manual are made either through Operating Bulletins, or other written documents signed by the appropriate Department Managers.
3. Review Unusual Occurrence Logs and verify if properly maintained.
4. Perform review records to determine whether SCADA has been maintained as required, and that all preventative and corrective maintenance practices comply with the applicable reference criteria.
5. Review SCADA reports/logs related to intrusion alarms, false

presence, and others associated with SCADA monitoring.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Superintendent of Transportation, Assistant Superintendent of Transportation, and Operations Control Center (OCC) Supervisor and determined the following:

1. The OCC Manual is reviewed and revised on an as needed basis. Concerns (regarding rules compliance, operations, etc.) may arise after an accident/incident.
2. Staff inquired to the process regarding OCC Manual revisions. All discussions take place during SDTI weekly Senior Staff meetings and Major Incident Review Committee (MIRC) meetings. Changes to OCC Manual are revised then signed off by Superintendent of Transportation. Distribution of revisions are distributed as noted on Checklist 13-E.
3. Staff reviewed Unusual Occurrence Reports (UOR) and Controller logs. UOR's contain information regarding annulled or late trains, missed stations, property damage or personal injury. The Controller's Log contains information regarding Events, dark or dropped signals, defective crossing gates. The current month is kept in a log book maintained at the Operations Control Center. The log is archived daily both via hard copy (that is kept for a minimum of 3 years for CPUC review) and in a soft copy. Currently UOR's are maintained by using Microsoft Word documents, however, SDTI is transitioning/beta testing their new Trolley Operations Support Application (TOSA) system. SDTI is currently running both applications in parallel to ensure the TOSA performs adequately to verify it doesn't interfere with SDTI's current operation. TOSA is an in-house Information Technology (IT) program that tracks missed trips and stations, Light Rail Vehicle (LRV) vs. Auto incidents, LRV vs Pedestrian incidents, track closure, and slow order work crews. The IT team responsible for TOSA implementation meets weekly with the Transportation Superintendent and the

Operations Control Center Supervisor regarding the current testing phase and changes to the program if/when appropriate. After July 1, 2015 (current plan date for full TOSA implementation), UOR's will archive automatically for trending purposes. Staff was given the following to review for TOSA development and testing: 1. Original Specification, 2. Enhancement Request documents (4 randomly selected documents), 3. Production Issues Log, 4. Test Plan, and 5. User Documentation.

4. SDTI's SCADA System is a double redundant system. The primary system with a hot/mirrored standby is located at SDTI's Operations Control Center (OCC). The secondary system with a hot/mirrored standby is located at SDTI's Bus Operations Control Center (BOCC). In the event of a SCADA system hardware failure at the OCC, the mirrored system becomes the primary system at the OCC. If both systems fail at OCC, the redundant primary system at the BOCC becomes the new primary system and so forth.

SDTI has contracted with ARINC as SDTI's SCADA hardware and software support with integrating all of SDTI's rail lines into SCADA. In early 2015, ARINC performed a hardware refresh of all SDTI's SCADA servers. The old 32 bit processors servers were upgraded to 64 bit processor systems; however the software upgrade to 64 bit hasn't been decided or scheduled yet. Currently the new hardware upgrades are being monitored for any errors as new connections to existing stations, Track to Wayside Communications (TWC), Traction Power Substations (TPSS), etc., are currently being added. SANDAG is funding the hardware and software upgrade but SDTI is the decision maker as to when the software upgrade will take place. SDTI and ARINC have weekly conference calls to strategize a good point to transition software to 64 bit.

ARINC also holds the contract for SDTI's SCADA version control and SCADA system data up to 120 days. Staff was sent emails on June 19, 2015, with screenshots from ARINC's archive system showing past and current SCADA versions in the event SDTI's SCADA is required to

changed due to software, hardware or other issues. On July 1, 2015, SDTI emailed staff attachments of ARINC's archive system showing it has 90 days of SCADA system data, backed up on ARINC's servers, ready to restore in the event of a SCADA system crash. ARINC and SDTI agreed that 90 days of SCADA system data on a backup is sufficient for now but will modify if necessary.

5. SDTI's SCADA system shows no false positives of any type in the tunnel system showing false occupancy due to intrusion detection. During the beta testing of the tunnel intrusion detection system, SDTI adjusted the intrusion detection system to prevent false positives due to debris, and small animals such as small rodents and birds. SDTI's stations do not have elevated platforms and are not gated at the ends; therefore, SCADA does not monitor the stations for intrusion.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|------------------------------|------------------------------|---|
| Checklist No. | 14-A | Element | Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside |
| Date of Audit | June 17, 2015 14:00-16:00 | Department(s) | Facilities |
| Auditors/ Inspectors | Michael Warren | Persons Contacted | Rolando Montes – SDTI, Facilities Manager |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Non-Revenue Facilities and Wayside

Interview SDTI representatives and review appropriate records for past 3 years to determine whether:

1. Required inspections were performed per supporting references.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans developed, and implemented in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Facilities Manager and determined the following:

- Non-revenue facility inspections are performed on a monthly basis.
- Maintenance/Cleanup of non-revenue facilities is performed on a daily basis.
- Inspection reports are forwarded to Safety, Wayside, Facilities, Light Rail Vehicle (LRV) Maintenance Departments

- Inspection Report corrective actions are assigned to departments with appropriate level of safety training to perform the function within the environment, (i.e. Wayside if near overhead contact wire or LRV Maintenance if within a mechanic pit).
- Prior to 2014, Facilities Department reported to Wayside Superintendent
 - Presently Facilities Department reports to Chief Operations Officer
- SDTI is in the process of procuring Enterprise Resource Planning (ERP) that will assist in assigning and tracking trouble tickets

Staff reviewed the following documentation:

- Industrial Wastewater Control Program (IWCP) Laboratory Analysis Report dated 05/09/13
- Industrial and Commercial Storm Water Compliance Inspection Report dated 11/28/12
 - Inspection performed 11/9/12
 - 13 Corrective Actions Required. Resolved 11/28/12
- 2014-2015 Annual Report for Storm Water Discharges
- 2013-2014 Annual Report for Storm Water Discharges
- 2012-2013 Annual Report for Storm Water Discharges
- Monthly Buildings and Grounds Safety Inspection Checklists
 - January 2012 – no defects
 - September 2012 – no defects
 - March 2013
 - No documentation of defects being corrected.
 - April 2013
 - Issues from March 2013 reported again, most defects corrected but some remain open without a specified reason
 - June 2014
 - Paint shop lighting not finished through present because of trolley in shop. Paint contractor, Guzman, is aware of issue and will notify SDTI when replacements can occur.
 - December 2014 – no defects
 - February 2015
 - No documentation on several lighting issues being

corrected

- “Metro” Daily Activity Reports
 - July 2012 – no defects
 - March 2012 –no defects
 - May 2014 – no defects
 - December 2014 – no defects

1. Staff reviewed the above documents to confirm that monthly non-revenue facility inspections have occurred per SOP E-7008.
2. Staff reviewed the above documents to confirm that non-revenue facility inspections were properly documented. However, Staff noticed that noted defects are inconsistently tracked and follow-ups are not well documented. On some inspection checklists, it was noted that an LRV on the track prevented corrective action at the time but no further attempts were made until next monthly inspection was due.
3. See #2 above.

Findings:

1. Facilities Department is inconsistent with its documentation and follow-up of corrective actions originating from Monthly Buildings and Grounds Inspections.

Comments:

None.

Recommendations:

1. SDTI should develop a mechanism for tracking and following up on reported defects in the Facilities Department (Same as Checklist 14-B recommendation).

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|--|------------------------------|------------------------------|---|
| Checklist No. | 14-B | Element | Facilities and Equipment Inspections: Stations and Emergency Equipment |
| Date of Audit | June 16, 2015 09:00-11:00 | Department(s) | Facilities |
| Auditors/ Inspectors | Dan Kwok Claudia Lam | Persons Contacted | Rolando Montes, Facilities Manager Brenda Jackson, Administrative II Facilities |
| REFERENCE CRITERIA | | | |
| <ol style="list-style-type: none"> 1. CPUC General Order 164-D 2. CPUC General Order 143-B 3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014 | | | |
| ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION | | | |
| <p>Facilities and Equipment Inspections: Stations and Emergency Equipment Interview SDTI representatives and review appropriate records to determine whether:</p> <ol style="list-style-type: none"> 1. Required inspections were performed. 2. Inspections were properly documented and noted discrepancies were corrected in a timely manner. 3. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation. | | | |
| FINDINGS AND RECOMMENDATIONS | | | |
| <p><u>Activities:</u> Staff interviewed SDTI personnel and determined the following:</p> <ol style="list-style-type: none"> 1. SDTI performs monthly and daily inspections of their stations and facilities. <p>Staff reviewed records of the following daily station inspection reports (building inspection, lighting, station inspection, landscaping irrigation):</p> | | | |

7/26/2012

7/29/2012

4/19/2013

5/22/2013

5/25/2015

6/15/2015

No discrepancies were found.

Staff reviewed the following monthly facilities inspection report for emergency equipment checks (Fire alarms, smoke detectors, PA system):

September 2012

June 2013

May 2015

Staff noted the fire extinguisher expiration dates on the 2012 and 2013 monthly inspection forms were past due. SDTI explained that the contractor hired to recharge the fire extinguisher would put the date the extinguishers were recharged instead of when the extinguishers would expire. Persons checking the extinguisher tags would mark down the date listed on the tags. Staff commented SDTI should direct their contractor to either use expiration dates for their extinguishers or recharge dates only, and update their inspection forms accordingly.

The facilities department no longer performs annual inspections. The monthly inspection form reviews all items the annual inspections would have reviewed.

The Facilities Department also no longer performs bi-monthly inspections of light rail vehicle (LRV) systems. The LRV maintenance department is responsible for the inspection.

Facilities staff performs station inspections daily, and fills out daily inspection forms for any discrepancy. Discrepancies noted during daily inspections are reported to Operations Control Center (OCC), a Job Card (via Ellipse) and a Trouble Report is generated, and then forwarded to the appropriated department to be repaired. Once the issue has been completed, the completion date is filled out in the trouble report. A supervisor verbally follows-up on the issue and verifies the issue has been resolved before signing off on the trouble report as complete.

2. Any discrepancies noted during inspection are logged though Job Cards and Trouble Reports. The issue is followed by the responsible supervisor until completion and sign off. When discrepancies are fixed, there may be an email summary of items fixed, however record keeping is inconsistent. Facilities supervisors have weekly meetings which reviews and/or summarizes issues found, and potentially extra meetings are held as needed. The Facilities Department does not have a centralized tracking system Facilities issues that are logged and completed. SDTI is currently developing a system wide tracking program, Systems Applications Products.

Findings:

1. Facilities Department does not have a centralized tracking system for when issues are logged and completed.

Recommendations:

1. SDTI should develop a mechanism for tracking and following up on reported defects in the Facilities Department (Same as Checklist 14-A recommendation).

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|------------------------------|------------------------------|--|
| Checklist No. | 14-C | Element | Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures |
| Date of Audit | June 18, 2015 14:00-16:00 | Department(s) | Wayside Department |
| Auditors/ Inspectors | Michael Warren | Persons Contacted | Fred Byle – Superintendent of Wayside Ricardo Medina – Manager of Track and Structures |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Tunnels, Bridges, and Aerial Structures

Interview SDTI representatives and review appropriate records to determine whether:

1. Structures inspections were performed.
2. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.
3. Potential hazards found during inspections were tracked until resolution.
4. The Safety Committee and Safety Department are aware of all safety hazards identified from Facilities and Equipment Inspection.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Superintendent of Wayside and Manager of Track and

Structures and determined the following:

- The SDSU tunnel receives a visual inspection every Sunday and Wednesday while the track inspection is being performed.
- SDTI's rule is at least one SDSU tunnel inspection per week.
- Bridges are inspected once per year per inspection plan submitted to FRA.
- SDTI contracts bridge inspections to J.L. Patterson & Associates, Inc.

Staff reviewed the following documents:

A. Green Line Bridge

- Laurel Street Underpass
 - 4-9-12
 - 4-29-13
 - 3-26-14
- Qualcomm Guide Way
 - 4-13-12
 - 5-1-13
 - 3-26-14

B. Orange Line Bridge

- Cholas Creek
 - 4-10-12
 - 3-20-13
 - 3-24-14
- I-8 Overpass
 - 4-9-12
 - 3-18-13
 - 3-24-14

C. Blue Line Bridge

- 24th Street
 - 4-16-12
 - 3-22-13
 - 3-25-14
- Otay River
 - 4-16-12
 - 3-21-13
 - 3-25-14

D. SDSU Tunnel

- February 2012 – 7 inspections, no defects
 - June 2013 – 7 inspections
 - 6-17-13 Inspection missing
 - September 2014 – 9 inspections, no defects
1. Structure inspections were performed in accordance with SDTI procedures/plans.
 2. Structure inspections are properly documented. Defects and recommendations are evaluated by J.L. Patterson and prioritized. Defects are corrected through one of two methods: Job-Order Contracting for “minor” repairs and Capital Project Contracting for “heavy” repairs. Projects are tracked by SDTI Engineering Department and monthly status updates via the Capital Monitoring List which is distributed to all departments.
 3. Potential Hazards are tracked on inspection reports.
 4. See #2 Above.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|------------------|------------------------------|---|
| Checklist No. | 14-D | Element | Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance |
| Date of Audit | June 10-12 2015 | Department(s) | Wayside Department |
| Auditors/ Inspectors | Colleen Sullivan | Persons Contacted | Alex Pereyra, Assistant Superintendent of Wayside Maintenance Jeff Love, Wayside Training Supervisor Dexter Seavello, Wayside Maintenance Supervisor Brian Trewin, Wayside Maintenance Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: GO 95 Right-of-Way Compliance

Select at least four (2) of mainline or yard track sections at random from each of the following areas:

1. Blue Line
2. Green Line
3. Orange Line

Interview SDTI representatives, review appropriate records, and perform visual inspections and measurements to determine whether for each track section:

1. Right-of-Way inspection and maintenance standards and programs are compliant with General Order 95.
2. The required monthly, semi-annual, and annual inspections were performed during the past 3 years.
3. Inspections were properly documented and noted, and discrepancies were corrected in a timely manner.

4. Potential hazards found during inspections were tracked from recommendation, Corrective Action Plans, and implementation.
5. All right-of-way components are in compliance with the applicable reference criteria, or variances approved by CPUC.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Assistant Superintendent of Wayside Maintenance ,and reviewed SDTI Right-of-Way inspection and maintenance standards programs for the Blue Line, Green Line, and Orange Line and found them to be compliant with General Order 95.

Staff interviewed Wayside Maintenance Supervisor's regarding SDTI's monthly, semi-annual, and annual inspections for the Overhead Catenary System (OCS). Staff reviewed wayside scheduled monthly, semi-annual, and yearly OCS maintenance and inspection records for the years 2012, 2013, and 2014 for the following lines:

Orange Line: 12th and Imperial to Baltimore Junction

Blue Line: 12th and Imperial to San Ysidro

Green Line: Santa Fe Depot to Santee Town Center

Downtown Area: IMT around Broadway Wye to 12th and Imperial

A Yard: Tracks A1 – A26 and 6th and 8th Avenue

C Yard: Tracks CL (switch 17 to C11)

Green Line: 70th to Fenton

- 1, 2. Staff found the monthly, semi-annual, and yearly OCS inspections of all of the above were conducted as scheduled.

3, 4. The Wayside Maintenance Supervisor showed Staff SDTI's Excel spreadsheet which tracks the Overhead Catenary System inspection schedules and demonstrated to Staff on the computer how OCS inspections are tracked. The Excel spreadsheet notifies when the next inspection is due.

5. The Wayside Maintenance Supervisor has developed a color-coded table on these Excel spreadsheets of OCS hazards with the severity ranging from 1 – 10; with 10 being the most severe. These OCS hazards rated 8-10 are taken care of as soon as possible. Speed restrictions are put onto the SDTI system until these OCS violations are corrected. The Excel spreadsheet notes the following:

- A. The date the OCS hazard is found
- B. The severity of the OCS hazard
- C. The description of the defect
- D. Repair action if needed (corrective action)
- E. Location of discrepancy
- F. Date of repair

Thus, these potential hazards found during OCA are tracked from recommendation, Corrective Action Plans, and implementation.

Comments:

None.

Recommendations:

None.

Activities:

Staff performed a visual inspection of the OCS system on the Green Line, Blue Line, Orange Line, Downtown Line and A yard. In addition, measurements of the overhead contact lines were performed. The scope of the inspection consisted of:

- Checking the installation of guy guards or down guy wires

- Checking the tension of down guy wires
- Visual check of excessive pig-tail wraps on down guy wires
- Visual check for corrosion on “johnny ball” type insulators
- Measurements of OCS wire height above top-of-rail
- Visual check of riser wires properly strapped to the OCS poles
- Visual check for fraying of wires on communication system cable wires
- Visual check of lashing wires
- Visual check for exposed ground wires
- Visual check of tree branches extending into the OCS wire system
- Visual check of Midpoint anchor assemblies ability to withstand a single point of failure

Staff determined the following:

Green Line:

Measurement of overhead contact wire height at 70th Street Station:

1. Eastbound track = 19’6” : Acceptable
2. Westbound track = 19’5” : Acceptable

Measurement of overhead contact wire height at Hazard Center Station:

1. Eastbound track = 19.8” : Acceptable
2. Westbound track = 19’8” : Acceptable

Measurement of overhead contact wire at Taylor Crossing:

1. Eastbound track = 19’5” : Acceptable
2. Westbound track = 19’6” : Acceptable

A vegetation management violation was found at 70th Street Station:

1. The vegetation eastbound on the tracks approximately 300 yards from the 70th Street Station is in close proximity to the OCS wires. This vegetation must be trimmed to be in compliance with General Order 95 Rule 37.

Blue Line

Measurement of overhead contact wire at Barrio Station:k2

1. Eastbound track = 22'3": Acceptable
2. Westbound track = 22'4": Acceptable

Measurement of overhead contact wire at Pacific Fleet:

1. Eastbound track = 22'4": Acceptable
2. Westbound track = 22'3": Acceptable

Measurement of overhead contact wire at J Street:

1. Eastbound track = 22'5": Acceptable
2. Westbound track = 22'4": Acceptable

Orange Line

Measurement of overhead contact wire at Massachusetts Crossing:

1. Eastbound track = 22'4": Acceptable
2. Westbound track = 22'3": Acceptable

Measurement of overhead contact wire at Euclid Crossing:

1. Eastbound track = 22'4": Acceptable
2. Westbound track = 22'5": Acceptable

Measurement of overhead contact wire at High Street Substation:

1. Eastbound track = 22'2": Acceptable
2. Westbound track = 22'2": Acceptable

A vegetation management violation was found just west of Lemon Grove Station and west of Broadway Street:

1. Two trees are touching OCS wires. These trees must be trimmed to be in compliance with General Order 95 Rule 37.

Downtown Line

Measurement of overhead contact wire at American Plaza:

1. Eastbound track = 20'6": Acceptable
2. Westbound track = 20'4": Acceptable

Measurement of overhead contact wire at Park and K:

1. Eastbound track = 19'3": Acceptable
2. Westbound track = 19'4": Acceptable

Measurement of overhead contact wire at the A Yard:

1. T1 near shop substation = 21'1": Acceptable

At the A Yard at the east of the track, the guy guard is broken and needs to be replaced. The broken guy guard is in violation of General Order 95, Section 56.9 "A substantial marker of suitable material, including, but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, on the outermost guy is required to have a marker."

Measurement of overhead contact wire at C Yard:

1. SW 19B/CL = 10'11": Acceptable

Findings:

1. The vegetation eastbound on the tracks approximately 300 yards from the 70th Street Station is in close proximity to the OCS wires. This vegetation must be trimmed to be in compliance with General Order 95

Rule 37.

2. A vegetation management violation was found just west of Lemon Grove Station and west of Broadway Street; two trees are touching OCS wires. These trees must be trimmed to be in compliance with General Order 95 Rule 37.
3. At the A Yard at the east of the track, the guy guard is broken and needs to be replaced. The broken guy guard is in violation of General Order 95, Section 56.9 "A substantial marker of suitable material, including, but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, on the outermost guy is required to have a marker."

Comments:

None.

Recommendations:

1. SDTI should achieve compliance with General Order 95 Rule 37 violations with its vegetation management non-compliances.
2. SDTI should achieve compliance with General Order 95, Rule 56.9 pertaining to the broken guy guard.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--|------------------------------|--|
| Checklist No. | 14-E | Element | Facilities and Equipment Inspections: Signal Communication, Train Control, Grade Crossing |
| Date of Audit | June 9-10,15,17,19, 2015 09:00-14:30 | Department(s) | Wayside Department |
| Auditors/ Inspectors | Heidi Estrada | Persons Contacted | |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. CPUC General Order 75-D
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. Code of Federal Regulations CFR 49, Part 234, Grade Crossing Signal System Safety
6. Manual Uniform Traffic Control Devices (MUTCD), Signage Requirements

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Signal Communication, Grade Crossing

Interview SDTI's representative responsible for Wayside Maintenance, and randomly select Preventative Maintenance (PM) records from the past 3 years and determine whether:

1. SDTI's Track and Turnout and Crossing Maintenance:
 - a. Perform detailed inspections of the mainline switches and at-least six (6) grade crossings (two grade crossings per operating line) components to determine whether or not they are in compliance with the applicable reference criteria.
 - a. All required PM activities were properly documented and corrected in a timely manner.

- b. Defects and non-compliances noted on inspection report forms were tracked from recommendation, Corrective Action Plan, and implementation.
3. Vital Relays Preventative Maintenance:
- a. Review the records of preventive maintenance, scheduled and unscheduled maintenance activities for vital relays to determine if inspections were performed at the required frequencies as specified in the reference criteria.
 - b. All required PM activities were properly documented and corrected in a timely manner.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff reviewed Grade Crossing Inspection Records and Vital Relay Record and determine the following:

Blue Line

Interlocking S58 (S57 A/B, S59 A/B) – none.

Iris Avenue Grade Crossing / Signal Case – none.

Dairy Mart Road Grade Crossing / Signal Case – none.

Orange Line

Interlocking E26 (E25A/B, E27A/B) – none.

Interlocking E28 (E29A/B) – none.

Switch No. 1725 (West of Wagner Ave) Milepost 17.25 EB Mainline – none.

Arnele Avenue Grade Crossing / Signal Case – none.

Wagner Drive Grade Crossing / Signal Case – none.

Palm Street Grade Crossing / Signal Case – none.

Green Line

Interlocking E20 (E19A/B)

Interlocking E28 (E29A/B)

Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Vital Relay Records

Staff reviewed Relay Vane / D.C. Test Inspection Records dated 2011- present and found the following:

Old Town (Noelle) – all inspections and test performed at required frequency.

El Cajon (E26) - all inspections and test performed at required frequency.

Baltimore Junction (E20) - all inspections and test performed at required frequency.

Findings:

Green Line

- i. Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.
- ii. Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Comments:

None.

Recommendations:

1. SDTI should maintain the most current Blue Prints in their Signal Cases as required by 49 CFR Part 234.201.A3. (Same Recommendation as Checklist 15-C).

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|---|------------------------------|---|
| Checklist No. | 14-F | Element | Equipment Maintenance Program: Measurement and Testing Instrumentation |
| Date of Audit | June 10& 11, 2015 09:00-15:00 (LRV) June 11, 2015 (Wayside) 09:00-15:00 | Department(s) | Wayside Department LRV Maintenance Department |
| Auditors/ Inspectors | Mike Borer James Matus, Adam Freeman | Persons Contacted | Andy Goddard, Superintendent (LRV) Maintenance, Mel Bickham, Assistant Superintendent (LRV), Fred Byle, Superintendent WaysideMaintenance, Jeffery Love, Training Supervisor Maintenance of Way. |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. NTSB Safety Advisory R-13-1 and R13-2, Use of Jumpers

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facilities and Equipment Inspections: Measurement and Testing Instrumentation

Interview responsible SDTI representatives from each department, review appropriate records, and inspect no fewer than eight measuring or testing instruments to determine whether:

1. The selected gauges, micrometers, calipers, torque wrenches, multi-meters, etc. are properly inventoried, stored, distributed for use, calibrated at prescribed intervals, and marked, tagged, or otherwise identified to show current calibration status.
2. The next scheduled testing/calibration due date is shown on each instrument.

3. Tools and instruments requiring calibration are addressed in an appropriate procedure(s)

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Superintendent of Light Rail Vehicle (LRV) Maintenance, Assistant Superintendent of LRV Maintenance and the Wayside Training Supervisor and reviewed testing and calibration procedures with LRV Maintenance Department and Wayside Department and found the following:

Tools and equipment from both departments in SDTI's equipment maintenance program were inspected for proper yearly calibration procedures. Staff reviewed records of tools and equipment to verify they are properly inventoried, stored, tagged, marked, and calibrated at prescribed intervals. Staff reviewed SDTI's procedures to calibrate and correctly mark equipment with the appropriate calibration dates and also reviewed SDTI's procedures distribution, use, tool location, and equipment signed out for use.

Light Rail Vehicle Maintenance Department tools inspected for proper calibration testing dates:

- 1) Multi-meter #BL8345 calibration interval 12 months cal. control #A69930 (Passed).
- 2) Digital pressure gauge #CU9129 calibration interval 12 months cal. control #CR8826 (Passed).
- 3) Multi-meter #CL2613 calibration interval 12 months (Passed).
- 4) Torque wrench #BJ7695 calibration interval 12 months (Passed).
- 5) Digital pressure gauge #BB0349 calibration interval 12 months (Passed).
- 6) Torque wrench #BJ7611 (Failed) missed 12 month calibration interval. Tool was stored for use in tool crib. Tool taken out of service for calibration and testing.

Wayside Maintenance Department tools inspected for proper calibration testing dates:

- 1) A/C relay tester #0601001 calibration interval 12 months (Passed).
- 2) Digital Multi-meter #14340094 calibration interval 12 months (Passed).
- 3) Digital Multi-meter #1390079 calibration interval 12 months (Passed).

- 4) Torque wrench #4DA96 calibration interval 12 months (Passed).
- 5) Oscilloscope #B198003 calibration interval 12 months (Passed).
- 6) Digital Multi-meter #134420054 calibration interval 12 months (Passed).
- 7) Clamp Meter #25480306WS calibration interval 12 months (Passed).

Findings:

Numerous tools and equipment from the Wayside department for Years 2012 and 2013 could not be accounted for, nor were there any documentation records of 12 month testing and calibration intervals. The tools and equipment were not found for testing purposes, inspection or location.

Comments:

None.

Recommendations:

1. SDTI should develop a Standard Operating Procedure for measuring and testing instrumentation calibration which requires records for calibration testing dates, tools in service, assignment, location, or no longer in service.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--------------------------------|------------------------------|--|
| Checklist No. | 15-A | Element | Maintenance Audits and Inspections: Rail Vehicles (Revenue & Non-revenue) |
| Date of Audit | June 9-11, 2015 09:00-15:00 | Department(s) | LRV Maintenance Department |
| Auditors/ Inspectors | John Madriaga | Persons Contacted | Jeff Love , Wayside Training Supervisor Andy Goddard, Superintendent of Light Rail Vehicle Maintenance |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Rail Vehicles

1. Perform detailed inspections of SDTI's revenue and non-revenue rail vehicles to determine if the following components are properly and adequately maintained:
 - a. Axle-mounted gearbox
 - b. Truck, axle, and wheel assemblies
 - c. Brake systems
 - d. Door assemblies
 - e. Lighting
 - f. Passenger doors
 - g. Passenger component and safety appliances
 - h. Public address and intercom systems
2. Determine whether the cars are in compliance with the applicable references based on record review and inspections.
3. Randomly select 10% of the fleet (SD100, SD7, SD8, PCC) and review the maintenance records for those vehicles for the past 3 years. Check to see that:

- a. The preventive maintenance (PM) performed was at the required maintenance interval;
 - b. The records were properly documented with the necessary review and approval
 - c. Noted defects were corrected in a timely manner
4. Randomly interview maintenance personnel, including both supervisors and mechanics, to verify that they have available the most current maintenance procedures and that they understand and have been properly instructed on using the information.
 5. Determine if personnel have access to the testing and measurement equipment or devices that may be specified by inspection and testing procedures.
 6. Determine if personnel know of any immediate safety concerns or hazards that are the result of poor maintenance activities.
 7. Verify if SDTI has performed their major change-out/overhaul of safety critical systems and or structure integrity of the LRV(s) as per maintenance procedures.
 8. Randomly select a minimum of three Hi-rail maintenance vehicles to review the completed Preventative Maintenance (PM) and unscheduled maintenance records associated with each car selected over the last three years to determine whether or not:
 - a. The vehicles were inspected during preventative maintenance at the required frequencies as specified in the referenced criteria.
 - b. The records were properly documented with the necessary review and approval.
 - c. Noted defects were corrected in a timely manner.
 - d. Any necessary adjustments or modifications to the rail system are tracked and monitored for performance and safety.

FINDINGS AND RECOMMENDATIONS

Activities:

Maintenance Audits and inspection: Hi-Rail vehicles Section 8. - a,b,c,d.

CPUC Staff randomly selected Hi-rail vehicles, inspected and reviewed the completed Preventive Maintenance and unscheduled maintenance records for each vehicle selected.

Vehicles #

441; 437; 436; 438; 448; 461

Equipment#

SS458 Auto Crane

Findings:

1. Vehicle#437-amber light not working properly; unable to insert hi-rail RH locking pin.
2. Equipment SS458- missing safety locking pins for Hi-rail attachments; rear work light inoperable; RH turn signal inoperable.

Comments:

None.

Recommendation:

1. SDTI should ensure that hi-rail vehicles found with defective items are noted, corrected, continue following requirements of 49 CFR Part 214 Railroad Workplace Safety, Subpart D

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|-----------------------------|------------------------------|---|
| Checklist No. | 15-B | Element | Maintenance Audits and Inspections: Traction Power System |
| Date of Audit | June 9, 10, and 11, 2015 | Department(s) | Wayside Department |
| Auditors/ Inspectors | Colleen Sullivan | Persons Contacted | Brian Terwin, Wayside Maintenance Supervisor Jeff Love, Wayside Training Supervisor Dexter Seavello, Wayside Maintenance Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 95
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. SDTI Standard Operating Procedure – CAT 101
6. SDTI Quarterly Substation Inspection, Quarterly Substation Inspection Procedure SUB-STA. 2.O, dated 4/30/11.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Traction Power System

Interview SDTI representatives and select at least one section of the overhead catenary power system and one substation from each of the following areas:

1. Blue Line
2. Orange Line
3. Green Line

For each section, review the appropriate documentation and perform a visual inspection to determine whether:

1. The rail traction power system is inspected and maintained in compliance with SDTI's standards.
2. Substations and are inspected and maintained in compliance with

SDTI's standards.

Review SDTI's stray current program to determine whether:

1. SDTI is active in mitigating the effects of stray current on its own and surrounding structures.
2. SDTI has procedures in place to identify and correct hazards caused by stray current.
3. Any hazards identified have been addressed and tracked through Corrective Action Plans to completion.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Wayside Maintenance Supervisors and reviewed overhead catenary and traction power substation inspection records and found the following:

1. Wayside Scheduled Quarterly Substation Records dated 2013-2014
Substation records reviewed:

San Altos Substation Pacifica, Nebo Drive Substation 22.3.2

Mission Valley M-4, Substation TR

Fletcher Parkway 24B: Substation 22.3.1.2

I Street, Substation 22.3.1.2 TR

Via Las Cumbras M-2, Fashion Valley – Substation TR

Amaya Drive, Qualcomm East Substation M8

Hill Street 23, Substation 22.3.1.2

Main Street B, Substation 22A

F Street 8A: Substation-22.3.1.2

Qualcomm West CPC M-7, Substation TR

Pacifica: Substation 22.3.1.2

Sweetwater Flat 7, Substation 22.3.1.2

I-108 Freeways Bridge M-5 Substation TR

Hill Street Substation 22.3.1.2 S/L '12

Staff found the substation battery inspections are being performed on a monthly basis as required by SDTI SSPP Section 5.3.3 Wayside Scheduled

Maintenance requirements.

Staff found no non-compliances during this record review.

2. Wayside Scheduled Overhead Catenary System (OCS) records reviewed for the years 2012, 2013, and 2014:

Staff reviewed wayside monthly, semi-annual, and yearly OCS maintenance and inspection records for the years 2012, 2013, and 2014 for the following lines:

Orange Line: 12th and Imperial to Baltimore Junction

Blue Line: 12th and Imperial to San Ysidro

Green Line: Santa Fe Depot to Santee Town Center

Downtown Area: Imperial Transfer (IMT) around Broadway Wye to 12th and Imperial

A Yard: Tracks A1 – A26 and 6th and 8th Avenue

C Yard: Tracks CL (switch 17 to C11)

Green Line: 70th to Fenton

Staff found the monthly, semi-annual and yearly OCS inspections were conducted as scheduled. Staff found no non-compliances during this records review.

Findings:

None.

Comments:

None.

Recommendations:

None.

3. Field Activities:

Staff inspected seven (7) Substations and Overhead Catenary System (OCS) on the Blue Line, Green Line, and Orange Line. All substations were fenced in securely. The interiors of the substations were clean, dust-free, and all logbooks were present detailing the past inspections and maintenance.

Staff found all conductors on the OCS met minimum height requirements of General Order 95; SDTI variances and all hooks were present satisfying General Order 95, Rule 74.4-F (1) requirement for the wire to remain a minimum of 10 feet above the ground if a single suspension breaks.

Green Line:

Amaya Substation

OCS conductor height Eastbound: 22'5"

OCS conductor height westbound: 22'7"

Yard Substation #2 – C3B and C3E

Yard OCS conductor height Eastbound: 19'6"

Yard OCS conductor height Westbound: 19'7"

Mission Valley Substation

OCS conductor height Eastbound: 20'4"

Orange Line:

Merlin Substation

OCS conductor height Eastbound: 22'2"

OCS conductor height Westbound: 22'4"

San Altos Substation

Blue Line:

Sweetwater Substation

OCS conductor height Eastbound: 22'1"

La Polita Substation

OCS conductor height Westbound: 22'3"

Staff found no non-compliances during this field review of substations and overhead catenary system.

Findings:

None.

Comments:

None

Recommendations:

None.

4. SDTI is active in mitigating the effects of stray current on its own and surrounding structures. SDTI has active patrols to verify that its cables are intact at substations. Currently, SDTI staff is measuring all of the cables and performing installation tests on all negative and positive cables that are going into its substations. If SDTI staff finds a bad cable to a substation, it is replaced. If one bad cable is found, it is pulled out on both ends (the cables are completely disconnected). SDTI staff patrols to make sure cables are insulated and have a secure connection to the rail.
5. SDTI has procedures to identify and correct hazards caused by stray current. If a customer reports stray current leakage (corrosion is found) or has a concern about negative drainage (any stray current getting into the water pipes, etc.) SDTI staff will coordinate with the customer. SDTI will connect this problem area to a substation. The stray current would go into the substation and relieve the problem.
6. SDTI has had no customer complaints pertaining to stray current hazards. No hazards have been identified and therefore none have to be tracked through Corrective Action Plans to completion.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--|------------------------------|--|
| Checklist No. | 15-C | Element | Maintenance Audits and Inspections: Train Control and Signal Systems Maintenance |
| Date of Audit | June 9-10,15,17,19, 2015 09:00-14:30 | Department(s) | Wayside Department |
| Auditors/ Inspectors | Heidi Estrada | Persons Contacted | Fred Byle, Superintendent of Wayside Alex Pereyra, Assistant Superintendent of Wayside Jeff Love, Wayside Training Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Signal Systems Maintenance
Perform detailed inspections of the signal system components to determine whether or not they are in compliance with applicable reference criteria. Select at least one track section at random from each of the following areas to inspect, including at least one at-grade section, one tunnel section and one aerial section (review records for past 3 years and conduct field inspections):

1. Blue Line
2. Orange Line
3. Green Line

FINDINGS AND RECOMMENDATIONS

Activities:
Staff performed field inspections followed by review of Grade Crossing Inspection Records and determined the following:

Blue Line

Interlocking S58 (S57 A/B, S59 A/B) – none.

Iris Avenue Grade Crossing / Signal Case – none.

Dairy Mart Road Grade Crossing / Signal Case – none.

Orange Line

Interlocking E26 (E25A/B, E27A/B) – none.

Interlocking E28 (E29A/B) – none.

Switch No. 1725 (West of Wagner Ave) Milepost 17.25 EB Mainline – none.

Arnele Avenue Grade Crossing / Signal Case – none.

Wagner Drive Grade Crossing / Signal Case – none.

Palm Street Grade Crossing / Signal Case – none.

Green Line

Interlocking E20 (E19A/B)

Interlocking E28 (E29A/B)

Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Findings:

Green Line

- iii. Noelle Street Grade Crossing / Signal Case – Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.
- iv. Severin Drive Grade Crossing / Signal Case - Case did not contain most current Blue Prints as required by 49CFR Part 234.201.A3.

Comments:

None.

Recommendations:

1. SDTI should maintain the most current Blue Prints in their Signal Cases as required by 49 CFR Part 234.201.A3. (Same Recommendation as Checklist 14-E).

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|--------------------------------|------------------------------|--|
| Checklist No. | 15-D | Element | Maintenance Audits and Inspections: Tracks and Turnouts |
| Date of Audit | June 9-12, 2015 09:00-15:00 | Department(s) | Wayside Department |
| Auditors/ Inspectors | John Madriaga | Persons Contacted | Ricardo Medina, Manager of Track and Structures |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. Code of Federal Regulations CFR 49, Part 213, Track Safety Standards

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Audits and Inspections: Tracks and Turnouts

Perform detailed inspections of mainline tracks to determine whether or not they are in compliance with applicable reference criteria. Select at least one track section from each of the following areas to inspect, including at least one at-grade section, tunnel section, and one aerial section:

1. Blue Line
2. Orange Line
3. Green Line

Review SDTI's preventative maintenance records, schedule and unscheduled maintenance activities for two separate 6 month periods in the past 3 years:

1. Track Inspection:
 - a. Review the track inspection reports from field inspection to determine whether:
 - i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
 - ii. Inspections were properly documented and noted defects

- were corrected in a timely manner and tracked until completion.
- iii. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans, developed, and implemented in a timely manner.
- b. Randomly select at least two separate recorded geometry car inspection reports to determine whether:
 - i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
 - ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
 - iii. Potential hazards found during inspections are immediately reported, documented, and tracked through resolution, Corrective Action Plans, developed, and implemented in a timely manner.
 - c. Review SDTI internal rail defect reports to determine whether:
 - i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
 - ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.
2. Turnout Inspection:
- a. Review at least two separate turnout inspection reports from field inspection to determine whether:
 - i. Mainline tracks, yard leads, and transfer tracks were inspected at the proper frequency.
 - ii. Inspections were properly documented and noted defects were corrected in a timely manner and tracked until completion.

FINDINGS AND RECOMMENDATIONS

Activities:

A. Field Review

Staff performed detailed inspections of mainline tracks and turnouts of a track section in the following areas of the Blue Line, Orange Line and Green Line, including at grade section, tunnel section, and aerial section.

Blue line:

S59B- guard check 54-3/8" on M/L
S59A- guard check 54-3/8" on M/L
S57A- junction box, impaired walkway
S57B- #3 switch rod loose

Iris Ave Xing

None.

Orange Line:

S29A- guard check 54-3/8" on M/L; loose heel block
S29B- guard check 54-3/8" on M/L

Arnele Xing-none

E29A- none
E29B- none
E1722 Spur- junction box, pvc pipe impaired walkway, Standard #3 walkway; obstruction between tie plate and base of rail; loose heel block
E27B-guard check 54-3/8", loose gage rods at crossovers, Standard#3 walkway
E27A- none
E25A-none
E25A-none
E25B- loose heel block, Standard #3 walkway

Green Line:

70th Street Xing- none

M29B-none
M31B-none

Diamond-none

M31A-none
M29A-none

SDSU Tunnel:

None.

Aerial section:-

Some vegetation between MP11.5-13.0

Findings:

1. Blue Line: S57 #3 Switch basket rod loose
2. Orange Line: S29A Loose Heel Block; E1722 Spur- junction box, pvc pipe impaired walkway, Standard #3 walkway; obstruction between tie plate and base of rail; loose heel block E27B-guard check 54-3/8", loose gage rods at crossovers, Standard#3 walkway; E25B- loose heel block, Standard #3 walkway
3. Green Line Aerial Section: Some vegetation between Milepost 11.5 – 13.0.

Comments:

Lock washers should be tightened until compressed. Main line sections are in good condition.

Recommendations:

1. SDTI should comply with G.O. 118-A walkway standards and G.O 143-B, Sections 9.01; 9.12; 14.05.

B. Maintenance Records Review

Staff interviewed the Superintendent of Wayside and the Manager of Track and Structures and performed the following:

Staff examined two separate Geometry Car inspections under section 1. B dated January 1 to June 30th, 2013 and January 1 to June 30th 2014.

Staff examined internal rail defect reports from section 1. C dated January 1 to June 30th 2013 and January 1 to June 30th 2014.

Staff examined two separate turnout inspection reports from section 2. A (January 1 to June 30th 2013 and January 1 to June 30th 2014).

Findings:

Section 2. A: Staff determined SDTI's detailed Annual Turnout Inspection form does not include a measurement for "guard face gauge".

Comments:

Measurements for both "guard check gauge" and "guard face gauge" are critical in determining the amount of gauge side wear, guard rail wear and frog flange way wear on a turnout frog (the track structure that allows trains to move from one track to a separate track).

Staff found that for the past triennial period, SDTI's detailed annual turnout inspection forms showed two measurements for "guard check gauge" and no measurement for "guard face gauge". There can be only one measurement for "guard check gauge" and one for "guard face gauge". Therefore, under section 2. A, detailed annual turnout inspections were not properly documented.

Recommendations:

2. SDTI should revise the Annual Turnout Inspection form to include a "guard face gauge" entry next to "guard check gauge" entry per CFR 49 part 213.143 requirements.
3. SDTI should also conduct detailed turnout inspections to determine the amount of gauge side, guard rail and flange way wear on all of its frogs per CFR 49 part 213.143 requirements.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|-------------------------------|------------------------------|--|
| Checklist No. | 16-A | Element | Training and Certification Programs: Train Operators, Controllers, and Line Supervisors |
| Date of Audit | June 19, 2015 09:00-11:00 | Department(s) | Transportation Department |
| Auditors/ Inspectors | Daniel Kwok Michael Warren | Persons Contacted | Dave Jensen, Training Supervisor Michele Cederberg, Training Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Train Operators, Controllers, and Supervisors

1. Select between two (2) and five (5) employees at random in each of the following classifications:
 - Train Operators
 - Controllers
 - Supervisors
2. Review training, certification, and recertification records of the selected employees related to Road Way Protection, Personal Equipment Device, and other specific job required training to determine whether:
3. All employees successfully completed initial training programs, and any discrepancies were addressed and resolved.
4. All employees have been recertified at the required frequency and are currently certified to perform their duties.
5. Verify that a process for maintaining and accessing employee training records is in place.
6. Verify categories of safety-related work requiring training and

- certification have been identified.
7. Verify employee and contractor job classifications requiring initial and refresher training and certification have been identified.
 8. Verify SDTI has a process is in place to assess compliance with its training and certification requirements.
 9. Verify corrective actions taken to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.
 10. Verify that contractor training requirements are specified in contract documents.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed Transportation Training Supervisor and determined the following:

1. Staff reviewed the following Supervisor, Train Operator, and Controller records:

| Supervisor | Retrained |
|------------|-----------|
| 990040 | 2/20/2014 |
| | 3/7/2012 |
| 69903 | 2/20/2014 |
| | 3/7/2012 |

| Controller | Retrained |
|------------|-----------|
| 34557 | 2/10/2014 |
| | 3/9/2012 |
| 52632 | 2/26/2015 |
| | 3/5/2013 |

| Operator | Retrained |
|----------|-----------|
| 11294 | 10/5/2011 |
| | 9/17/2013 |
| 12514 | 9/30/2011 |
| | 8/27/2013 |
| 11729 | 2/18/2012 |

| | |
|--|-----------|
| | 1/30/2014 |
|--|-----------|

2. SDTI states the RWP program was fully implemented starting 2015 to all SDTI staff and is now a recertification requirement. All Supervisors, Controllers, and train operators have been issued an RWP booklet and have been formally RWP trained. Staff reviewed employee training records (see #1) and verified retaining occurred every 2 years.
3. SDTI maintains training records in an employee folder which contains all training and tests the employee was administered. SDTI also maintains a spreadsheet of all training information of train operators, supervisors, and controllers and this is checked monthly to identify employees due for retraining.
4. Staff reviewed SDTI training programs and have found the programs include modules covering the following safety items:
 - Infectious Disease Awareness
 - Incident Management
 - Biochemical Hazards
 - Roadway Worker Protection
 - Drug & Alcohol
 - Fatigue Awareness and Musculoskeletal Injury Prevention
 - Customer Service
 - San Diego State University (SDSU) Emergency Procedures
 - Harassment

SDTI recertification for Train Operator, Supervisor, and Controller reviews the above modules, with emphasis on the following:

- Roadway Worker Protection
 - Customer Service and Sensitivity
 - Defensive Driving
5. Staff reviewed and verified SDTI has the following programs: "Train Operator Training Program" (11 Weeks), "Train Operator Recertification Program" (24 Hours), "Transportation Supervisor Training Program" (120 Hours Yard or Line, 200 Hours Yard and Line), "Supervisor Recertification Program" (16 Hours), "Controller Training Program" (320 Hours), and "Controller Recertification Program" (16 Hours).

Recertification training is mandatory every 2 years after completion of initial training.
 6. SDTI Supervisors perform formal and informal efficiency tests, at least

2 per week on train operators. SDTI also performs evaluation tests, at least once per quarter. The test results are tracked and analyzed for any trends to help improve the training course.

7. SDTI utilizes a progressive discipline program. For the first offense, the employee is written up and retrained; on second offense the employee will be suspended for a period of time and retrained; on the third offense, the employee is terminated.
8. SDTI does not use contractors for train operations.

Comments:

None.

Findings:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|----------------------------|------------------------------|--------------------------|---|
| Checklist No. | 16-B | Element | Training and Certification Programs: Maintenance Employees |
| Date of Audit | June 18, 2015 09:00-12:00 | Department(s) | Light Rail Vehicle Maintenance Department |
| Auditors/Inspectors | Adam Freeman James Matus | Persons Contacted | Anthony Pergrina, Training Supervisor, Light Rail Vehicle Maintenance |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Maintenance Employees

Select at least three (3) employees from the Light Rail Vehicle Maintainers classifications.

1. Review the training and certification records for the last three years to determine whether or not:
 - a. The employee has received the required training to perform his/her duties
 - b. The employee qualifications are on file.
 - c. The employee has been re-certified at the required frequency
2. Verify that SDTI has a process in place to assess compliance with its training and certification requirements.
3. Verify corrective actions to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SDTI Light Rail Vehicle (LRV) Training Supervisor, LRV Assistant Superintendent & LRV Superintendent on department training programs and procedures. Staff reviewed three (3) LRV maintenance employees, training records and exams to ensure each employee received the proper training required to perform all duties safely and all employee's qualifications and test results are on file.

In addition staff reviewed and verified documentation of all certification/recertification programs that are being performed at required frequencies.

Staff reviewed documentation to ensure each employee is notified when maintenance procedures are updated or revised and that each employee receives a copy. Employees also receive training on CPUC general orders, rule of the day, bi-weekly rules, lock out tag out, blue flag protection, forklift, Material Safety Data Sheets (MSDS), fire extinguisher and yard certification/recertification. Employees have access to shop computer software which allows employees to receive instructions on MSDS and LRV maintenance procedures.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---|------------------------------|---|
| Checklist No. | 16-C | Element | Training and Certification Programs: Maintenance Employees and Contractors |
| Date of Audit | June 12, 2015 (OCS) 09:00-15:00 ----- | Department(s) | Wayside Maintenance Department |
| | June 16, 2015 (Signal) 09:00-12:00 | | |
| | June 18, 2015 (Track) 09:00-11:00 | | |
| Auditors/ Inspectors | Colleen Sullivan (OCS) ----- | Persons Contacted | Fred Byle, Superintendent of Wayside Jeffery Love, Training Supervisor, Maintenance of Way |
| | Heidi Estrada (Signal) ----- Kevin McDonald, John Madriaga (Track) | | |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Training and Certification Programs: Maintenance Employees

1. Select at least three (3) employees in each of the following classifications:
 - a. Signal Maintainers
 - b. Overhead Catenary/Substation
 - c. Track Maintainers
2. Review the training and certification records for the last three years to

determine whether or not:

- d. The employee has received the required training to perform his/her duties
 - e. The employee qualifications are on-file
 - f. The employee has been re-certified at the required frequency
3. Verify that SDTI has a process in place to assess compliance with its training and certification requirements.
 4. Verify corrective actions to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent.

FINDINGS AND RECOMMENDATIONS

Activities:

A. Wayside Department (Overhead Catenary Substation Maintainers and Signal Maintainers)

Staff interviewed Wayside Training Supervisor, and reviewed the following training, certification, and re-certification records and found the following:

1. Signal Maintainers – Five Signal Maintainer records were reviewed and Staff noted all records were current and in compliance with SDTI's SSPP. The Signal Maintainers have received the required training to perform his/her duties, their qualifications are on-file, and they have been re-certified at the required frequency.
2. Overhead Catenary/Substation – Nine Overhead Catenary/Substation employee records were reviewed and Staff noted all records were current and in compliance with SDTI's SSPP. The Overhead Catenary/Substation employees received the required training to perform his/her duties, qualifications are on-file, and they have been re-certified at the required frequency.

The Wayside Training Supervisor uses a spreadsheet to track employee training that has been completed and what remains. The spreadsheet is reviewed frequently and notification arrangements are made with the appropriate SDTI employees and contractors of upcoming training, certification, and re-certification classes.

The Wayside Training Supervisor showed Staff the corrective actions SDTI utilizes to discipline employees and contractors for failure to follow established procedures after training and certification are established and consistent. Staff was provided with examples of SDTI memorandums and letters to SDTI employees who have received disciplinary actions for failure to comply with procedures that pertain to their specific jobs.

Findings:

None.

Comments:

None.

Recommendations:

None.

B. Wayside Department (Track)

Staff interviewed the Superintendent of Wayside Maintenance and the Manager of Track and Structures in regards to training and certification for three randomly chosen SDTI track maintainers.

Staff examined initial certification records and found all three employees were certified in June 2013, and re-certification is due June 2015 (time of the audit).

Findings:

None.

Comments:

Staff found disciplinary corrective action was taken as needed. System safety program training and certification requirements are being satisfied.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---|------------------------------|---|
| Checklist No. | 17 | Element | Configuration Management and Control |
| Date of Audit | June 16, 2015 15:00-17:00 | Department(s) | SANDAG Engineering |
| Auditors/ Inspectors | Stephen Artus Daren Gilbert Noel Takahara | Persons Contacted | Michael Diana, Manager of Capital Projects Gabriel McKee, Project Engineer Thang Nguyen, Systems Engineer (Rail) Chip Finch, SANDAG Dale Neuzil, SANDAG |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Configuration Management and Control

1. Randomly select two SANDAG / SDTI system modifications or design changes during the last 3 years to ensure configuration management documentation was properly updated to include at minimum:
 - a. Engineering Design Peer Review;
 - b. Design and Analysis Review by the System Safety Department;
 - c. Safety and Security Review Committee (SSRC) Approval
 - d. Design and Analysis Review by CPUC if required;
2. Randomly select two Project Concepts submitted to the System Safety Department and verify that:
 - a. New Projects & Configuration Change Review forms were used.
 - b. Forms were circulated to the Safety and Security Review Committee (SSRC).

- c. SSRC performed a review, analysis, and approval of form by issuance of a Configuration Management Compliance Certificate for project.
- d. The change was reviewed and approved by SDTI's Chief Operations Officer
- e. Change was circulated to the proper departments for implementation.
- f. All necessary parties or contract employees within or outside the agency were properly notified about the change.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed SANDAG representatives and determined the following:

1. The SANDAG Configuration Management Plan (CMP) for MTS/SDTI corridor projects was drafted as final on 10/8/12. The configuration management plan is implemented when certain defined criteria are met in accordance with section 8.2 of the plan and SANDAG stated that it is the project manager's responsibility to ensure CMP implementation. SANDAG provided the auditors with project binders. The auditors reviewed the project binders and found that the first page of these binders was a CMP form that determined whether or not configuration management would be implemented. The "Traction Power Substation Rehabilitation" project (approximate budget of \$2 million dollars) did not meet the criteria necessitating implementation of the configuration management plan. The Blue Line Crossover project did meet the criteria and required implementation of the configuration management process. The CMP notes that design review can be conducted at Alternatives Analysis, 30%, 60%, 90%, and 100% stages of design completion and that the reviews include SANDAG, rail transit agencies (RTA), consultant staff and external agencies, as applicable. The CMP requires executive management sign off on prescribed forms for the following: Design Completion and Acceptance for Release to Contracts, Construction Change Orders, Contract Change Orders, and Requests to Deviate from Baseline Documents. The CMP does not define an SSRC, however the forms must be signed off by multiple levels of SANDAG

and RTA management from multiple departments. SANDAG notes that this is the initial CMP that was drafted, and they expect that it will be continuously improved upon to meet organizational needs. The auditors note that perhaps NCTD should also sign off on the CMP in addition to MTS/SDTI.

2. See above item 1.

Findings:

None.

Comments:

None.

Recommendations:

None.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|------------------------------|------------------------------|---|
| Checklist No. | 18 | Element | Local, State, and Federal Requirements: Employee Safety Program |
| Date of Audit | June 12, 2015 10:00-11:00 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Dan Kwok Mike Warren | Persons Contacted | Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Local, State, and Federal Requirements: Employee Safety Program

Interview SDTI personnel and review appropriate records for last 3 years to determine whether or not:

1. SDTI holds Monthly System Safety Committee Meetings with Safety, Transportation, Wayside, LRV Maintenance, and Security.
2. The Monthly System Safety Committee Meetings appropriately responds to employees' complaints regarding safety problems.
3. An appropriate procedure and reporting form for work place safety hazards is implemented, and distributed to all employees.
4. Employees are aware of the safety training and certification programs and properly documented.
5. Appropriate corrective actions regarding employee safety have either been satisfactorily completed, tracked, and documented to closure.
6. Has SDTI had any problems complying with local, state, or federal requirements? Review Meeting minutes to identify any

- problems and assess how the issue was handled and resolved.
7. Verify construction projects have specific procedures in place to ensure worker protection and public safety by fostering an awareness and concern for safety on the job site.
 8. Verify procedure implementation is the responsibility of the contractor organization performing the work and SDTI.
 9. Verify SDTI's operating and maintenance safety rules and procedures are included in construction contracts to bind contractors and employees to fulfilling their roles and responsibilities safely.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the System Safety Manager and Transportation Supervisor determined the following:

1. Staff has reviewed the following Monthly Safety Meeting records:

| 2015 | 2014 | 2013 |
|----------|-----------|-----------|
| January | January | January |
| February | February | February |
| March | March | March |
| April | April | April |
| May | May | May |
| | June | June |
| | August | July |
| | September | August |
| | October | September |
| | December | October |
| | | December |

SDTI currently holds 10 Safety Meetings per year. This practice was implemented within the last two years due to low attendance during summer and winter months to optimize the meeting schedule accordingly. The meetings have designated representatives from required departments in attendance.

2. Employee complaints may be brought up to the representative for the department, which can then be brought up to committee. Employees may also contact Operations Control Center (OCC) to report issues. For each complaint logged, OCC creates "Job Cards" which will then be relayed to the appropriate department for correction. The issue may also be followed up during safety meetings with each department to see if they were notified with a follow-up. Usually one Supervisor and one frontline employee represent each department in attendance.
3. SDTI uses Hazard/Near-Miss form to report Safety Hazards and this form may be found in Roadway Worker Protection (RWP) booklet and also in department/supervisor office. Generally, the department tries to resolve the issue internally first, but if the supervisor and department head can't resolve the issue, the Safety Department will then be notified for tracking and follow-up.
4. SDTI trains their employees in RWP, program and the sign-in sheet documents employees' attendance. SDTI also has a Rail Safety Policy Statement and an Employee Excellence Award to encourage safe behavior. Employees are trained to not wait for a Monthly Meeting to report hazards. If something that needs immediate attention, it is to be reported, usually with OCC, to be fixed.
5. Issues radioed into the OCC are assigned "Job Cards", which are tracked by individual departments and closed out; the employees receive feedback for issues and progress of complaints. If the department supervisor is unable to resolve the issue, it gets forwarded to the Safety Department for tracking. Hazard/Near-Miss Form also exists for employees to report issues. Employees learn of these programs during RWP training and signed on completion of training. Issues are also tracked through Monthly Safety Meeting minutes. Open items are discussed and updated at the meetings until they are satisfactorily closed.
6. SDTI states they do not have any problems complying with local, state, or federal requirements. Feedback is provided from the supervisory level to frontline employees on progress of addressing issue. Staff reviewed several monthly meeting minutes and verified issues are being tracked with updates each

month until completion and closure.

7. Construction projects are handled by SANDAG. All contractors must go through RWP training and must score 90% or above on the exam, if the contractors do not, the trainer performs one-on-one training until the contractor achieves an understanding of the rules and passes the course. If there is a particular question the majority of the class missed, the trainer will review the subject. All employee-in-charge (EIC) are MTS employees.
8. SDTI states Standard Operating Procedures (SOP) grants authority of overall worksite safety to the EIC. All persons at the worksite sign are required to acknowledge an understanding of worksite safety responsibilities by signature signoff (Flagperson/Right-of-Way Work Request form).
9. SDTI states SOPs 103.11 and 103.12 provide the rules and procedures employees must follow on the Right-of-Way. Contractors are taught during training and prior to entering the ROW, and must sign acknowledgement the MTS EIC has full authority over the worksite.

Findings:

None.

Comments:

None.

Recommendations:

None.

2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SAN DIEGO TROLLEY, INC. (SDTI)

| | | | |
|---------------------------------|-------------------------------|------------------------------|---|
| Checklist No. | 19 | Element | Hazardous Materials Program |
| Date of Audit | June 12, 2015 09:00-10:00 | Department(s) | System Safety Department |
| Auditors/ Inspectors | Daniel Kwok Michael Warren | Persons Contacted | Rebecca Zelt, System Safety Manager David Bagley, Transportation Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. SDTI's Hazard Communications Program and the Bloodborne Pathogen Training Program.

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Program

1. Verify that SDTI has developed an OSHA or state equivalent compliant Hazards Material Program (if applicable). Verify program includes a process to familiarize the employees with the hazards presented by materials used in the work place and the Employee Safety Program.
2. Verify program assigns roles and responsibilities to specific departments and personnel for reviewing and approving materials used or to be purchased and used at SDTI
3. Verify follow-up activities are performed for use of approved materials to ensure that safe and proper use, handling, storage, and disposal methods are employed.
4. Interview SDTI Safety Department representatives to discuss SDTI's hazardous materials program and the role of the SDTI Safety Department in enforcing this program and determine the following:
 - a. The procurement process for insecticides, herbicides, chemicals, and solvents.

- b. If a MSDS for each hazardous material is on file with the System Safety Department.
 - c. All approved Material Safety Data Sheets (MSDS) are on-file and available for all employee access
5. Select at least six SDTI employees responsible for handling hazardous materials, and review their training records to verify they are qualified for reporting requirements, product release or spill, and spill incident response and clean-up.
6. Verify hazardous materials discharge/spill reports for incidents reported in the past 3 years have been prepared and filed properly.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed System Safety Manager and Transportation Supervisor and determined the following:

1. SDTI states their hazard materials (hazmat) program to be OSHA compliant and that no certification required. SDTI "Hazardous Communication Program" provides training for all SDTI employees who may come in contact with any hazardous materials. The training covers policies established by SDTI in the Hazardous Communication Program (Feb. 2006). The program trains employees on the hazards posed by the workplace and nature of work, and also on how to access MSDS records of hazardous materials at kiosks throughout the facility. The program may also include blood borne pathogens training for applicable employees.
2. The Hazardous Material program is currently being implemented by the Safety Department, but will transition to the Industrial Hygiene and Environmental Safety Section. SDTI uses MSDS Online to catalogue all materials at the site, and all previous materials used by SDTI are archived for reference. Hazardous materials may only be requested by site managers, and the request can only be approved by the Program Administrator to be added into MSDS Online for use.
3. Procedures on how to handle materials may be brought up during bi-weekly toolbox talks with SDTI employees. These talks are focused on general safety practices and are not always on the subject of hazardous materials. The Hazardous Material Program training teaches employees if anyone sees an inappropriate product it should be brought up to their

supervisor and/or the monthly safety meetings. Unauthorized products are immediately removed.

4. Procurement process for hazardous materials and MSDS record keeping described in #2. MSDS employee access is available through MTS intranet and at on-site kiosks at facilities.
5. Staff reviewed the following Hazard Material Program training records:

| Employee: | 2014 | 2013 | 2012 |
|-----------|------------|-----------|------------|
| 33879 | 11/21/2014 | 3/28/2013 | 3/23/2012 |
| 11820 | 11/20/2014 | 3/26/2013 | N/A |
| 12813 | 11/19/2014 | 3/25/2013 | 3/29/2012 |
| 44103 | 11/17/2014 | 3/25/2013 | 5/31/2012 |
| 10016 | 12/11/2014 | 5/2/2013 | 12/20/2012 |
| 95174 | 3/24/2014 | 2/6/2014 | 8/30/2012 |

No discrepancies found.

6. SDTI states that there have been no discharges within the last 3 years.

Comments:

None.

Findings:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|-----------------------------|------------------------------|--|
| Checklist No. | 20 | Element | Drug and Alcohol Program |
| Date of Audit | June 8, 2015 13:00-15:00 | Department(s) | Human Resources |
| Auditors/ Inspectors | Mike Warren | Persons Contacted | Brendan Shannon – MTS, Manager of Human Resources |

REFERENCE CRITERIA

1. Code of Federal Regulations, Title 49 Part 655 – Prevention of Alcohol Misuse and Prohibited Use in Transit Operations
2. CPUC General Order 164-D
3. CPUC General Order 143-B
4. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
5. MTS Drug and Alcohol Policy, 10-24-2011

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Program

Interview MTS representatives and review appropriate records prepared in the past 3 years to:

1. Verify the Substance Abuse Program meets current FTA requirements.
2. Verify SDTI has a policy for managing the use of over-the-counter drugs.
3. Select at least two safety-sensitive employees who tested positive for drugs or alcohol in the past 3 years and determine whether:
 - a. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP);
 - b. The employee was administered a return-to-duty test with verified negative results;
 - c. Follow-up testing was performed as directed by the SAP according to required follow-up testing frequencies in the

- reference documents after the employee returned to duty.
- d. Employees who retested positive are disciplined.
 4. Determine if SDTI has ever undergone a federal or state audit of its drug and alcohol program?
 - a. What were the recommendations if any?
 - b. Have corrective actions to recommendations been addressed?
 5. Confirm that this information was accurately reported to FTA through the RTA's annual submission to the Drug and Alcohol Management Information System (DAMIS).

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Human Resources Manager and determined the following:

1. The FTA's Triennial Review of San Diego Metropolitan System's (SDMTS) Drug and Alcohol Program Policy was performed July 21-23, 2014. The FTA's draft report was issued on May 6, 2015 and no-deficiencies were found in the FTA's 17-specific areas.
2. SDMTS states in their Drug and Alcohol Policy the use of any legal drug must be reported to the immediate supervisor using the Prescription Drug Notification Form.
3. SDMTS maintains a Zero-Tolerance Drug and Alcohol Policy.
 - a. Employee #1: On August 14, 2014, Employee tested positive for a random drug test. On August 25, 2014, Employee was informed of positive test result on their random drug test and was subject to employment termination. On September 2, 2014, Employee was terminated from employment.
 - b. Employee #2: On August 8, 2013, a Fact-Facing Hearing was held regarding an allegation of drug use. As a result of the hearing, a reasonable suspicion drug test was agreed to. A test was arranged with SDTI's contracted drug tester Drug Testing Network. While waiting to provide urine sample, Employee was discovered possibly trying to provide a fraudulent urine sample and walked out on scheduled testing. On August 13, 2013, Employee was notified that a Skelly Hearing was scheduled for August 19, 2013, as a chance for Employee to refute the allegations and failure to

appear would result in immediate termination. Employee failed to appear and was terminated from employment.

4. Refer to #1.
5. FTA Drug Testing DAMIS Data Collection Form Annual Reports to FTA were submitted for Years 2012-2014. Staff found no exceptions.

Findings:

None.

Comments:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|-------------------------------|------------------------------|---|
| Checklist No. | 21 | Element | Procurement Process |
| Date of Audit | June 17, 2015 13:00-014:30 | Department(s) | Procurement and Stores Departments |
| Auditors/ Inspectors | Daniel Kwok | Persons Contacted | Ernesto DeGuzman, Procurement Manager Fred West, Assistant Manager of Stores, George Ritenour, Storeroom Supervisor |

REFERENCE CRITERIA

1. CPUC General Order 164-D
2. CPUC General Order 143-B
3. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014
4. MTS Procurement Policy Manual

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement Process

Interview SDTI representatives and review appropriate documentation for the past 3 years to:

1. Verify MTS personnel are following applicable Procurement Policy and Procedures, and ensure safety issues and concerns are addressed in the procurement process.
2. Determine adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the SDTI System.
3. Verify that the SSPP contains a description of the basic procurement processes that must be followed by SDTI to assure that safety concerns and issues are addressed.
 - a. Are procurements of new equipment and material first reviewed by engineering, operations, and/or maintenance staff to verify the new equipment or materials won't present a hazard to the

- existing system?
- b. Do all procurement processes for hazardous materials address all appropriate rules and regulations?

FINDINGS AND RECOMMENDATIONS

Activities:

Staff has interviewed Procurement Manager, Assistant Manager of Stores, and Storeroom Supervisor and found the following:

1. SDTI's Policy is the employee requests an item and if available, item is issued to employee. Items that require restocking is procured through an approved vendor listed in Ellipse. All items currently catalogued have already been approved for use and have stock codes. A New Stock Code form must be filled out for new items which require approval by a supervisor or manager of the requesting department, the maintenance management department, storeroom department, and the MTS materials manager before the procurement department receives it. The safety department may also review and grant approval, but only if a hazard analysis is needed or if the item is a hazardous material. Analysis of the item is usually performed by the requesting department prior to department head signature. Staff reviewed the following New Stock Code forms:

| New Stock Code Form | Date Entered into Ellipse* |
|---------------------|----------------------------|
| 196790 | 5/1/2015 |
| 196782 | 5/1/2015 |
| 196709 | 4/10/2015 |
| 195289 | 1/8/2015 |
| 196758 | 5/1/2015 |
| 194548 | 9/9/2014 |
| 196733 | 4/13/2015 |

| | |
|--------|-----------|
| 196683 | 4/10/2015 |
|--------|-----------|

*Note: Ellipse is the current inventory database for SDTI

No discrepancies found.

The New Stock Code Form is an interdepartmental form. The forms' purpose is to notify relevant departments of procurements, but also serves to verify departments have reviewed the purchase and are aware of its procurement. There is no formal procedure for the New Stock Code Form however SDTI states they will be changing their inventory system to SAP within a year which will result in a revised procurement process.

2. Prior to receiving items, the storeroom performs a quick inspection to see if there are any damaged items. Once received, the item will be inspected by the requesting department to check for defects. If an item is found defective by the requesting department, the storeroom will contact the manufacturer/vendor with the issue to have it resolved. Staff reviewed 3 Receiving Reports:

| Received | Order # |
|-----------|---------|
| 9/25/2013 | R17066 |
| 1/16/2015 | R20428 |
| 2/20/2015 | R20713 |

No discrepancies found.

3. SDTI SSPP contains the basic procurement requirements to address safety concerns. For any new item being introduced to the system, the analysis for the impact to the system to see if it introduces any hazards

to the system is performed by the department prior to department signature. All approved hazardous materials are cataloged in Material Safety Data Sheet (MSDS) Online. If a new hazardous material is needed, site managers can only request items, and these can only be purchased with safety department approval. This database can also check for all applicable rules and regulations for the material requested.

4. Generally the safety department is not involved with procurement of items unless a hazard analysis is required or if the procurement is of hazardous materials.

Comments:

- 1) SDTI does not have a formal procedure for the New Stock Code Form process. Records reviewed indicate the form provides sufficient notice of review for new items and is followed by SDTI for review and approval. SDTI will also be implementing SAP application to their procurement process and will be retiring the current Ellipse database system within a year. SDTI store room and procurement will also change their processes once the new system is implemented.

Findings:

None.

Recommendations:

None.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|--|------------------------------|--|
| Checklist No. | 22 | Element | CPUC GO 172 – Personal Electronic Device Prohibitions/In-cab Cameras |
| Date of Audit | June 17, 2015 09:00-14:00 | Department(s) | LRV Maintenance Transportation Wayside Maintenance |
| Auditors/ Inspectors | Debbie Dziadzio Daren Gilbert Mike Borer | Persons Contacted | Andy Goddard, Superintendent of LRV Maintenance Mel Bickman, Assistant Superintendent of LRV Maintenance Fred Byle, Superintendent of Wayside Maintenance Alex Pereyra, Assistant Superintendent of Wayside Maintenance Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation |

REFERENCE CRITERIA

1. CPUC General Order 172
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 172 Personal Electronic Device Prohibitions/In-cab Cameras Compliance

Interview SDTI System Safety Department representatives and review appropriate documentation to determine the following:

Part 1: In-Cab Cameras

1. Verify in-cab cameras are installed on all light rail vehicles.

- a) Which types vehicles have cameras, and if any exemptions for

vehicles without cameras.

- b) What inspection program exists for in-cab camera systems?
 - c) Are the cameras capable of continuous recordings for at least eight (8) continuous operational days?
2. Verify if in-cab camera recordings are being reviewed following reportable accidents and incidents and what is in the criteria?
 3. Determine if a recording footage retention policy exists and how long footage is available for potential rule violations.

Part 2: Zero-Tolerance Policy

Verify a zero-tolerance policy for personal electronic device usage is implemented and employees who violate this policy are being disciplined.

1. Verify if a zero-tolerance policy for personal electronic device usage is implemented and employees who violate this policy are being disciplined
2. Review SDTI's SSPP, Operation Rules, and other guiding documentation which references or includes a 'zero-tolerance policy' towards PED usage exists.
3. Verify the Zero Tolerance Policy identifies disciplinary actions, steps up to and including discharge, and an appeals process for violators.
4. Determine if SDTI has records of GO172 violations on-file for the past 3 years.
5. Determine if SDTI has a training class requirement for employees to complete on PED usage.
 - a) Review employee records to determine if initial and refresher training is conducted for all required employees at least once every 2 years.
 - b) Verify SDTI's PED training policy is administered to Train

Operators, Controllers, and Wayside employees.

- c) Review at-least 3 employee records from Train Operators, Controllers, and Wayside workers to verify the RTA to provide roll-call sign-in sheet for all PED policy courses occurring in the past 3 years. Select several required staff, preferably from differing job categories, and verify that training/retraining was completed.
6. Perform a field check to verify the PED Reminder Decal is installed on light rail vehicles.

Part 3: Monitoring and Enforcement

1. Verify SDTI conducts periodic random monitoring (eg. video footage, etc.) inspections for GO 172 violations and records are documented.
2. Verify SDTI performs periodic operations evaluations and inspections and records are on file for at least 3 years.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed the Superintendent and Assistant Superintendent from Transportation Department, Light Rail Vehicle Department, and Wayside Department and determined the following:

Part 1 In-Cab Cameras

- a. Staff was advised that since November 2014, 100% of SDTI light rail vehicles (LRV)'s and two (2) Presidential Conference Car (PCC)'s are equipped with in-cab cameras. The exception is the U2 models which were retired end of January 2015 and are no longer in operation on SDTI system.
- b. Staff was advised LRV in-cab camera have a wireless system that self-checks each night. A visual inspection of a green LED on the console indicates the camera system is operational. When there is no green LED, or the wireless self-check indicates a problem,

the LRV is taken out of service and an outside contractor is called to service the camera.

- c. The in-cab camera system has 1TB storage capacity on hard drive and maintains approximately 14 days for video review.
2. In-cab cameras recordings are being reviewed following reportable accidents/incidents per General Order 172. The review criteria is all reportable accidents and incidents, plus near misses, operator performance, patron complaints, and Risk Management claims.
3. Staff received verification vehicles have a 14 day rotation. Per the Superintendent of Transportation,, video is flagged and pulled for various reasons (see #2). Video clips can be held or maintained for 180 days and can be pulled and retained permanently.
#2). Video clips can be held or maintained for 180 days and can be pulled and retained permanently.

Part 2 Zero-Tolerance Policy

1. SDTI has a Zero Policy regarding PED non-compliance as per SDTI's SSPP rev. 10 dated 12/14 Section 18.3 Personal Electronic Use (pg 60), Operating Rule 1.4.9 and SOP 101.27. Employees who violate the policy are immediately dismissed of employment. Contractors who violate the policy are ordered off SDTI property and are not allowed on SDTI system.
2. See above
3. See above.
4. Staff learned to date SDTI had 1 Train Operator, 1 Flagger, and 1 Contractor who have violated SDTI's PED Policy.
5. PED training is covered in new hire training and certification, recertification for all Employees.

- (a) Staff reviewed training and recertification records for all SDTI employees for January 2015 and confirmed PED policy is included in training.
- (b) Staff reviewed employees who were recertified in January, 2015 and reviewed their recertification records two years prior. Train Operators, Controllers and Wayside personnel receive PED training.
- (c) All records reviewed contained the required training material, however, there is no roll-call sign-in sheet.

6. Staff rode SDTI system for 2 weeks and confirmed PED Reminder Decal is installed on/in all LRV's.

Part 3 Monitoring and Enforcement

1. Staff observed and interviewed SDTI personnel responsible for random monitoring of in-cab cameras of Train Operators as per GO 172.
2. Began electronically when the LRV's were equipped with the cameras. Staff reviewed spreadsheet that lists Time Frame, LRV# monitored daily, monthly.

Findings:

1. Staff determined there is no PED observation for Maintenance movements in the yard.

Comments:

Staff suggested to Training Supervisor that a sign-in sheet be utilized for employee certification, recertification and any other training SDTI deems necessary.

Recommendations:

1. SDTI should randomly monitor maintenance movements in SDTI yard per General Order 172 requirements.

**2015 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR
SAN DIEGO TROLLEY, INC. (SDTI)**

| | | | |
|---------------------------------|---------------------------------|------------------------------|--|
| Checklist No. | 23 | Element | CPUC GO 175 – Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems |
| Date of Audit | June 17, 2015 09:00-11:00 | Department(s) | LRV Wayside Maintenance Transportation |
| Auditors/ Inspectors | Kevin McDonald John Madriaga | Persons Contacted | Fred Byle, Superintendent of Wayside Maintenance Alex Pereyra, Assistant Superintendent of Wayside Maintenance Tom Tupta, Superintendent of Transportation Brian Riley, Assistant Superintendent of Transportation Dave Jensen, Training Supervisor – Transportation Judy Bannister, Right of Way Engineer Rebecca Zelt, System Safety Manager |

REFERENCE CRITERIA

1. CPUC General Order 175.
2. SDTI System Safety Program Plan (SSPP) version 10 dated December 2014

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

General Order (GO) 175 Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway

Systems

Interview SDTI System Safety Department representatives and review appropriate documentation to determine the following:

Part 1: General Topics

1. Verify Roadway Worker Protection Program complies with G.O. 175.
2. Verify a separate dedicated manual describing all necessary roadway worker safety procedures and rules from SDTI's rule book(s), and the manual is available to all roadway workers during job performance.
3. Verify SDTI's compliance test program includes Roadway Worker Protection (RWP) rules, the rules to assess compliance and if rule revisions are included in the dedicated manual (No. 2 above).
4. Verify type of flag protection provided to roadway worker safety. If an established flag protection procedure exists, is this included in the dedicated manual (No. 2 above).
5. Review the SDTI's safety equipment requirements for roadway workers and verify policy requires all employees who access the mainline are required to wear high visibility clothing (safety vests or jumpsuits).
6. Verify SDTI's policy requires anyone with access to the mainline (by request, easement, or other form of permission) is required to complete the required RWP training, or be escorted by a RWP-trained employee.

Part 2: Job Safety Briefings

1. Review SDTI's employee in charge (EIC) roadway work site to provide a safety briefings sign-in sheets and verify that the briefings required the following aspects, when applicable:
 - a) The general work plan.
 - b) The hazards involved and safety protection provided such as

presence of roadway maintenance vehicles, adjacent tracks, and any need to widen track zone.

- c) Personal protective equipment requirements.
 - d) Identification and location of key personnel, such as the watchperson and EIC.
 - e) Flag use and placement.
 - f) A predetermined “place of safety,” where workers can move to within 15 seconds before rail vehicles moving at maximum speed authorized on that track can pass their previous location on the track. Considerations such as visibility, noise interference, and time required to get to the place of safety must be discussed.
 - g) The means of communication amongst roadway workers to be used.
 - h) Acknowledge each employee understands the rules to be used.
 - i) If a watchperson is used, the watchperson and all other employees must receive a review of their duties – specifically, to provide a warning in compliance with the aforementioned 15-second rule, and to refrain from performing or assisting in any other type of work.
2. Verify SDTI’s practice to conduct follow-up safety briefings, in cases where the crew or scope of work changes after initial safety briefing.
 3. Verify SDTI’s practice to conduct safety briefings through a discussion between the roadway worker and employee providing authorization to enter the roadway, which includes the protection to be used, in cases of an individual roadway worker moving from one location to another, or performing a minor task.

1. Verify SDTI's adopted Roadway Protection (RWP) training program educates workers about the hazards of working along the right-of-way, and the methods to safely work on the right-of-way.
 - a) Request SDTI to describe their RWP training program.
 - b) Ensure the training program includes classroom training.
 - c) Ensure the training program includes experience in a representative field-setting.
 - d) Ensure the training program covers the SDTI's rules and procedures.

2. Review SDTI's job types/classifications which are required to attend RWP training and:
 - a) Verify no employees whose duties are those of a rail worker are required to perform work without training, at maximum intervals of 24 months.
 - b) RWP training/re-training sessions sign-in sheets with different job classifications and training certificates for the past 3-years are on-file.

3. Verify the RWP training classes provide an opportunity for trainees to raise and discuss issues regarding the effectiveness of the program and educate employees about the functions of various persons involved with RWP procedures.

Part 4: Near-Miss Reporting Programs and Record Keeping

1. Review SDTI's program for reporting and recording near-misses regarding roadway worker protections and verify:
 - a) A policy statement supporting the near-miss program signed by the

CEO.

- b) A process to encourage and allow roadway workers to report near-misses.
 - c) Methods to store, easily access, and track near-misses and corrective actions.
 - d) Analysis to identify primary and contributory causal factors, and implementation of corrective actions.
- 2. Verify that the RTA periodically reviews the effectiveness of its near-miss program, and adjusts it in response to changes in industry practices.
 - 3. Verify SDTI's near-miss records are on file for the past 3-years and are available for CPUC staff review if requested.

Part 5: Compliance with Minimum Controls / Limitations Prescribed in G.O. 175

- 1. Review SDTI's RWP program and verify:
- 2. When performing the following types of work, at track other than that at its yard(s) and end-of-line storage track, the RWP specific minimum controls and limitations comply with GO175 Sections 6.1 through 6.3 for:
 - a) Moving from one location to another – Requirements described in Section 6.1.
 - b) Performing minor tasks – Requirements described in Section 6.2.
 - c) Performing visual inspections, maintenance, and repairs. Using hand tools, machines, or equipment. All other roadway worker / crew activities not covered in Sections 6.1 and 6.2 – Requirements described in Section 6.3.
- 3. Verify SDTI's RWP complies with yard and end-of-line storage track

requirements.

FINDINGS AND RECOMMENDATIONS

Activities:

Staff interviewed several members of SDTI's Safety, Operations and Track Maintenance departments. Staff also examined records pertaining to Roadway Worker Protection (RWP) General Topics, Job Safety Briefings, RWP training, Near Miss reporting and record keeping and compliance with minimum controls.

Findings:

None.

Comments:

Staff audited a SDTI contractor RWP training class on June 17, 2015. The instructor told the contractor/students if they were required to come within 25 feet of the nearest rail, they would be required to be accompanied by a SDTI Employee In Charge. Current SDTI RWP policy is if contractors are required to come within *15 feet* of the nearest rail, they must be accompanied by a SDTI Employee In Charge. SDTI should ensure that RWP instructors are aware of the SDTI rule change regarding fouling the track, *from 25 feet to 15 feet*. (See Checklist 13-B recommendation).

RWP system safety program requirements are being satisfied.

Recommendations:

None.