

**2011
TRIENNIAL ON-SITE
SAFETY REVIEW OF
SANTA CLARA VALLEY TRANSPORTATION AUTHORITY
(VTA)**

RAIL TRANSIT SAFETY SECTION
RAIL TRANSIT AND CROSSINGS BRANCH
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Final Report

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2011 TRIENNIAL ON-SITE SAFETY REVIEW SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

ACKNOWLEDGEMENT

The California Public Utilities Commission's Rail Transit Safety Section (RTSS) conducted this system safety program review. Staff members directly responsible for conducting safety review and inspection activities are:

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TABLE OF CONTENTS

	Page
1. EXECUTIVE SUMMARY	1
2. INTRODUCTION	2
3. BACKGROUND	3
VTA Rail System Description	3
VTA 2007 Triennial Review Recommendations Status	6
4. SAFETY REVIEW PROCEDURE	7
5. FINDINGS AND RECOMMENDATIONS.....	8
APPENDICES	
A. Abbreviation and Acronym List	15
B. VTA 2011 Triennial Safety Review Checklist Index	16
C. VTA 2011 Triennial Safety Review Recommendations List.....	18
D. VTA 2011 Triennial Safety Review Checklists	19

1. EXECUTIVE SUMMARY

The California Public Utilities Commission's (Commission) Consumer Protection and Safety Division (CPSD), Rail Transit Safety Section staff (Staff), conducted an on-site system safety program review of the Santa Clara Valley Transportation Authority (VTA) in January, 2011.

The on-site review was preceded by an opening conference with VTA personnel on January 24, 2011. Staff conducted the 2011 VTA on-site safety review from January 24 through January 28, 2011. The review focused on verifying the effective implementation of the System Safety Program Plan (SSPP).

Staff held a post-review conference with VTA personnel on February 10, 2011. Staff provided VTA personnel with a synopsis of the preliminary review findings and preliminary recommendations for corrective actions.

The review results indicate that VTA has a comprehensive system safety program and has effectively implemented its SSPP. However, staff noted exceptions during the review. These exceptions are described in the Findings and Recommendations sections of each checklist. Staff made seven recommendations for corrective actions as described in the 32 checklists. These are distributed to the Way Power & Signal Department.

The Introduction and Background Sections of this report are presented in Section 2 and 3 respectively. The Background Section contains a description of the VTA rail system and a status of the corrective actions resulting from the 2007 on-site safety and security review recommendations. Section 4 describes the review procedure. The review findings and recommendations are listed in Section 5. The 2011 VTA Triennial Safety Review Acronyms List is found in Appendix A, Checklist Index in Appendix B, Recommendations List in Appendix C and Review Checklists in Appendix D.

2. INTRODUCTION

The Commission's General Order (GO) 164-D *Rules and Regulations Governing State Safety Oversight of Rail Fixed Guideway Systems*, and the Federal Transit Administration's (FTA) Rule, Title 49 Code of Federal Regulations (CFR) Part 659, *Rail Fixed Guideway Systems: State Safety Oversight*, require the designated State Safety Oversight Agencies to perform a review of each rail transit agency's system safety program at a minimum of once every three years. The purpose of the triennial review is to verify compliance and evaluate the effectiveness of each rail transit agency's System Safety Program Plan (SSPP) and to assess the level of compliance with GO 164-D as well as other Commission safety requirements. Staff conducted the previous on-site safety review of VTA in October 2007.

Staff advised the VTA General Manager by a letter dated December 23, 2010 of the scheduling of the Commission's safety review on January 24-28, 2011. The letter included 32 checklists that served as the basis for the review. Eleven of the 32 checklists outlined inspection of track, operations, signals, electric power systems, and vehicles. The remaining 21 checklists focused on the verification of the effective implementation of the SSPP.

Staff conducted an opening conference on January 24, 2011 with the VTA General Manager, Executive Management of Transit System Compliance, Superintendents, Supervisors and Protective Services.

Staff conducted the on-site safety inspections and records review January 24-28, 2011. At the conclusion of each review activity, staff provided VTA personnel a verbal summary of the preliminary findings and discussed preliminary recommendations for corrective actions.

On February 10, 2011, staff conducted a post-review exit meeting with VTA's executive and department managers. Staff provided the attendees a synopsis of the non-compliant findings from the 32 checklists and discussed the need for corrective actions where applicable.

3. BACKGROUND

The Santa Clara Valley Transportation Authority (VTA) is both a transit provider and a multi-modal transportation development organization of Santa Clara County. The governing Board of Directors have seventeen members and two ex-officio members, all of whom are elected officials appointed to serve on the Board by the jurisdictions they represent. Fourteen Directors are city council members and three are County Supervisors. Twelve Directors serve as voting members and five Directors serve as alternates. The ex-officio members are non-voting members and are Santa Clara County's representatives to the Metropolitan Transportation Commission.

VTA currently operates an urban transit service with a fleet of diesel, gasoline, and hybrid diesel-electric buses and light rail vehicles within Santa Clara County. The Santa Clara County service territory contains 1335 square miles and has a population of nearly 2 million. Bus service is provided in the residential areas of Palo Alto to Gilroy, Los Gatos to Milpitas and all cities in between. Furthermore, Historic trolley service may be provided in the downtown San Jose Transit Mall on a seasonal basis. Below are the lines and segments with the date they opened.

VTA Rail System Description

VTA rail system consists of the Guadalupe, Tasman West, Tasman East, Capitol and Vasona Lines, with two other proposed extensions. The total operating system is approximately 42.2 miles with 62 Light Rail Stations. The average ridership of the system is approximately 31,355 per day in the year 2010.

Guadalupe Line

The 21-mile Guadalupe light rail line has been in service since 1991. The Guadalupe Line extends from south San Jose, into downtown and continues to employment centers in north San Jose and Santa Clara. The Downtown Center Plaza in San Jose serves as hub for rail/bus connections. It also links light rail and Caltrain service at Tamien Station in San Jose. The Guadalupe Line has 28 light rail stations.

Tasman West Line

The 7.6-mile Tasman West light rail line has been in service since 1999. This line travels through four cities: San Jose, Santa Clara, Sunnyvale, and Mountain View serving major employment centers of Silicon Valley. It links with Caltrain in Downtown Mountain View. The Tasman West Line has 16 light rail stations.

Tasman East Line

The Tasman East light rail line is a 4.8-mile extension from North First Street to Hostetter Road. The first phase, a 1.9-mile extension from North First Street to I-880 along the median of Tasman Drive, opened for revenue service in May 2001 and marked the first arrival of VTA light rail vehicles in the City of Milpitas. The second phase, a 2.9-mile segment from I-880 to Hostetter Road along the Capitol Avenue median, opened for revenue service in June 2004. Approximately 7,200 feet of this segment is grade separated over two railroad crossings, Montague Expressway, and other cross streets. The Tasman East Line has 6 light rail stations.

Capitol Line

The Capitol light rail line, a 3.5-mile extension of the Tasman light rail line, opened for revenue service in June 2004. It travels along Capitol Avenue from just south of Hostetter Road to Alum Rock Avenue, north of Capitol Expressway, and operates in the median of Capitol Avenue, with two vehicle travel lanes and a bike lane in each direction paralleling the trackway. The Capitol Line has 4 light rail stations.

Vasona Line Extension Project

The Vasona Light Rail Project is a 5.3-mile light rail extension to the existing VTA Light Rail system and operates primarily on the existing Union Pacific Railroad right-of-way. Revenue service began in 2005. The Vasona Line Extension has 8 light rail stations and links with Caltrain, ACE, and Capitol Corridor at Diridon Station.

Current Extensions in planning/construction

Capitol Expressway Light Rail (CELR) Extension

Current plans call for a 2.6-mile line extension from the existing Alum Rock Station to Eastridge Mall. The alignment will be at-grade as well as grade separated. This project is in the preliminary engineering phase.

Vasona Junction Light Rail Extension

Current plans call for a 1.5-mile line extension from the existing Winchester Station into the City of Los Gatos. This project is in the preliminary engineering phase.

Santa Clara Valley Transportation Authority/Silicon Valley Rapid Transit Project

The Santa Clara Valley Transportation Authority/Silicon Valley Rapid Transit Project (VTA/SVRT Project) is a 16.3-mile extension beginning at the planned Warm Springs BART Station in South Fremont, extending along the Union Pacific Railroad line to Milpitas and then continues on to 28th and Santa Clara Streets in San Jose. The extension will then proceed underground through Downtown San Jose to the Diridon Caltrain Station. The BART extension will then turn north under the Caltrain line and terminate at the Santa Clara Station. Staff has reviewed and the Commission has approved the Safety and Security Certification Plan for this project in its Resolution ST-83.

Status of the 2007 VTA Triennial Review Recommendations

Staff performed the previous triennial on-site safety review in October 2007. Staff made fourteen recommendations for corrective actions out of the thirty-two checklists. Results of the Year 2007 review demonstrated that VTA was in compliance with its SSPP.

CPUC Commission Resolution ST-96 adopted staff's final report and ordered VTA to develop an appropriate corrective action plan and implementation schedule to respond to the issued recommendations. Resolution ST-96 also ordered VTA to submit monthly status reports tracking the implementation of these corrective actions through full completion.

VTA developed and submitted a corrective action plan and an implementation schedule to fulfill each of the fourteen recommendations in compliance with Commission Resolution ST-96.

4. SAFETY REVIEW PROCEDURE

Staff conducted the 2011 safety review in accordance with Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial Safety Audits of Rail Transit Systems*. Staff developed thirty-two (32) checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, the VTA SSPP, safety-related VTA documents, and the Staff's knowledge of VTA operations. A list of the 32 checklists is contained in Appendix B.

Each checklist identified safety-related elements and characteristics that were either inspected or reviewed by Staff. The completed checklists include Staff findings and recommendations corresponding to non-compliant findings based on VTA's SSPP, its procedures, and/or Commission regulations. The methods used to perform the review included:

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

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

5. FINDINGS AND RECOMMENDATIONS

The triennial on-site safety review shows that the VTA rail system has a comprehensive SSPP and that VTA has been effectively implementing that plan. Review findings identify areas where changes should be made to further improve the SSPP. The review results are derived from activities observed, documents reviewed, issues discussed with management, and field inspections. Overall, the review result confirms that VTA is in compliance with its SSPP. The review identified seven (7) recommendations from the 32 checklists. Following are the findings and recommendations for each checklist:

1. Executive Management Involvement and Commitment to Safety

No findings of non-compliance; no recommendations.

2. Signal Communication, Train Control, Grade Crossing – CPUC Signal Inspector

Staff found the following deficiencies:

- Some crossing gate arm heights failed to meet GO 75-D minimum requirements and MTN-PR-6205.
- Some crossings did not have the emergency notification signs, advance warning signs, and necessary pavement markings and therefore failed to meet the GO 75-D minimum requirements and/or MUTCD requirements.

Recommendation:

1. VTA should inspect its grade crossings and produce documentation showing full compliance with GO 75-D and MTN-PR-6205 requirements.

3. Track, Switch, and Turnout Inspection - CPUC Track Inspector

No findings of non-compliance; no recommendations.

4. Light Rail Vehicle Inspection - CPUC Equipment Inspector

No findings of non-compliance; no recommendations.

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

No findings of non-compliance; no recommendations.

6. Operation Safety Compliance Program Inspection - CPUC Operations Inspector

No findings of non-compliance; no recommendations.

7. Hazard Management and Safety Data Acquisition Analysis

No findings of non-compliance; no recommendations.

8. Safety and Security Certification

No findings of non-compliance; no recommendations.

9. Accident Reporting and Investigation

No findings of non-compliance; no recommendations.

10. Emergency Response Planning, Coordination and Training

No findings of non-compliance; no recommendations.

11. Internal Safety Audit Program

No findings of non-compliance; no recommendations.

12. Operating Rules and Procedures Review - CPUC Operations Inspector

No findings of non-compliance; no recommendations.

13. Hours of Service

No findings of non-compliance; no recommendations.

14. Bridges/Aerial Structures

No findings of non-compliance; no recommendations.

15. Traction Power Inspection

Staff found the following deficiency:

- Small tree growth was seen touching the Overhead Catenary System on the Guadalupe line by Guadalupe Park on San Carlos Street. VTA staff trimmed the small tree growth that was touching the OCS at Guadalupe Park on San Carlos after the inspection and updated CPUC representative about the after action taken.

Recommendation: no recommendations

16. Right of Way Inspection (Fencing, Warning Signs, Barrier, Vegetation)

No findings of non-compliance; no recommendations.

17. Track and Turnout Maintenance Review- CPUC Track Inspector

Staff found the following deficiency:

- No quarterly inspection record was provided for some switches.

Recommendation:

2. VTA should develop controls necessary to alert management when quarterly switch inspection records are not properly documented as required.

18. Maintenance Training and Certification

No findings of non-compliance; no recommendations.

19. Light Rail Vehicle Preventative Maintenance - CPUC Equipment Inspector

No findings of non-compliance; no recommendations.

20. Non Revenue Vehicle Maintenance - CPUC Equipment Inspector

No findings of non-compliance; no recommendations.

21. Traction Power Substation Maintenance Review

Staff found the following deficiencies:

- In 2010, Substation 13 first quarterly inspection was deferred according to inspection form 6151B.
- Substations inspection records review revealed that SCVTA staff has been unable to complete all weekly inspection dictated in SCVTA form 6151A.
- There exists a 9" x 30" hole in the floor below the newly installed SCADA system for substations 1, 3, 4 and 14.

Recommendation:

3. VTA should conduct weekly substation inspections and quarterly inspections on all substations as directed by maintenance procedure 6151. Also, VTA should repair the approximate 9" x 30" hole in the floor in all substations below the newly installed SCADA system.

22. Right-of-Way Maintenance Review

No findings of non-compliance; no recommendations.

23. Drug and Alcohol Policy/Program

No findings of non-compliance; no recommendations.

24. Configuration Management and System Modification

No findings of non-compliance; no recommendations.

25. Employee and Contractor Safety - Injury and Illness Prevention Program

No findings of non-compliance; no recommendations.

26. Hazardous Materials Programs / Environmental Management

No findings of non-compliance; no recommendations.

27. Procurement

No findings of non-compliance; no recommendations.

28. Quality Assurance

No findings of non-compliance; no recommendations.

29. Overhead Catenary System Records Review

Staff found the following deficiency:

- Inspection Form MTN-FR-6150F Semi-Annual Shop Disconnect Switch revealed track inspection was not conducted as required.

Recommendation:

4. VTA should conduct all Semi-Annual Shop Disconnect Switch Inspections as specified in procedure MTN-PR-6150.

30. Vital Relays Inspections, Maintenance and Records – CPUC Signal Inspector

Staff found the following deficiencies:

- Yr 2006 Vital Relays test required for 2010, documentation was not provided due to the fact that testing of these vital relays has not been performed to date.

Recommendation:

5. VTA should produce documentation and develop controls to make certain that all relays are maintained as required by MTN-PR-6206.

31. Facility Safety Inspection

Staff found the following deficiency:

- Platform preventive maintenance is not being performed at the required frequencies.

Recommendation:

6. VTA should adhere to its schedule of all Preventive Maintenance Services on a regular basis per its procedure MTN-PR-6201 for all its stations.

32. Gated Crossing Maintenance Records Review– CPUC Signal Inspector

Staff found the following deficiencies:

- All inspection and preventive maintenance related to VTA grade crossing warning systems are not being done in accordance with VTA policies and procedures, and are also not in compliance with CPUC and FRA standards.
- Some quarterly reports were missing.
- Cable resistance testing is not being performed as required on installed cables and, therefore, should be done at least once every 10 years to be in compliance with CFR 234.267.

Recommendation:

7. VTA should develop controls to make certain that MTN-PR-6205 requirements are followed and are properly documented.

APPENDICES

- A. Abbreviation and Acronym List
- B. VTA 2011 Triennial Safety Review Checklist Index
- C. VTA 2011 Triennial Safety Review Recommendations List
- D. VTA 2011 Triennial Safety Review Checklists

APPENDIX A

ABBREVIATION and ACRONYM LIST

Abbreviation / Acronym	Description
CAP	Corrective Action Plan
CA MUTCD	California Manual on Uniform Traffic Control Devices
CFR	Code of Federal Regulations
Commission	California Public Utilities Commission
CPSD	Consumer Protection and Safety Division
CPUC	California Public Utilities Commission
FTA	Federal Transit Administration
GO	General Order
HOS	Hours of Service
IIPP	Injury and Illness Prevention Program
ISSA	Internal Safety and Security Audit
OCC	Operations Control Center
PHA	Preliminary Hazard Analysis
PM	Preventive Maintenance
RTCB	Rail Transit and Crossing Branch
RTSS	Rail Transit Safety Section
SCP	Safety Certification Plan
SCVR	Safety Certification Verification Report
SSP	System Security Plan
SSPP	System Safety Program Plan
Staff	Consumer Protection and Safety Division personnel
SCVTA	Santa Clara Valley Transportation Authority
TSA	Transit Security Administration
VTA	Santa Clara Valley Transportation Authority

APPENDIX B

2011 VTA TRIENNIAL SAFETY REVIEW CHECKLIST INDEX

Checklist No.	Element / Characteristic	Checklist No.	Element / Characteristic
1	Executive Management Involvement and Commitment to Safety	17	Track and Turnout Maintenance Review – CPUC Track Inspector
2	Signal Communication, Train Control, Grade Crossing – CPUC Signal Inspector	18	Maintenance Training and Certification
3	Track, Switch, and Turnout Inspection – CPUC Track Inspector	19	Light Rail Vehicle Preventative Maintenance – CPUC Equipment Inspector
4	Light Rail Vehicle Inspection – CPUC Equipment Inspector	20	Non Revenue Vehicle Maintenance – CPUC Equipment Inspector
5	Train Operator, Line Supervisor, and Central Control Supervisor Training and Recertification	21	Traction Power Substation Maintenance Review
6	Operation Safety Compliance Program Inspection – CPUC Operations Inspector	22	Right of Way Maintenance Review
7	Hazard Management and Safety Data Acquisition Analysis	23	Drug and Alcohol Program
8	Safety and Security Certification	24	Configuration Management and System Modification
9	Accident Reporting and Investigation	25	Employee and Contractor Safety - Injury and Illness Prevention Program
10	Emergency Response Planning, Coordination and Training	26	Hazardous Materials Programs / Environmental Management

11	Internal Safety Audit Program	27	Procurement
12	Operating Rules and Procedures Review - CPUC Operations Inspector	28	Quality Assurance
13	Hours of Service	29	Overhead Catenary System Records Review
14	Bridges/Aerial Structures	30	Vital Relays Inspections, Maintenance and Records – CPUC Signal Inspector
15	Track Power Inspection	31	Facility Safety Inspection
16	Right of Way Inspection (Fencing, Warning Signs, Barrier, Vegetation)	32	Gated Crossing Maintenance Records Review – CPUC Signal Inspector

APPENDIX C

2011 VTA TRIENNIAL SAFETY REVIEW RECOMMENDATIONS LIST

No.	Recommendation	Checklist No.
1	VTA should inspect its grade crossings and produce documentation showing full compliance with GO 75-D and MTN-PR-6205 requirements.	2
2	VTA should develop controls necessary to alert management when quarterly switch inspection records are not properly documented as required.	17
3	VTA should conduct weekly substation inspections and quarterly inspections on all substations as directed by maintenance procedure 6151. Also, VTA should repair the approximate 9" x 30" hole in the floor in all substations below the newly installed SCADA system.	21
4	VTA should conduct all Semi-Annual Shop Disconnect Switch Inspections as specified in procedure MTN-PR-6150.	29
5	VTA should produce documentation and develop controls to make certain that all relays are maintained as required by MTN-PR-6206.	30
6	VTA should adhere to its schedule of <u>all</u> Preventive Maintenance Services on a regular basis per its procedure MTN-PR-6201 for <u>all</u> its stations.	31
7	VTA should develop controls to make certain that MTN-PR-6205 requirements are followed and are properly documented.	32

APPENDIX D

2011 VTA TRIENNIAL SAFETY REVIEW CHECKLISTS

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	1	Subject	Executive Management Involvement and Commitment to Safety
Date of Review	January 24, 2011	Department(s)	Executive Managers (Operations and Transit System Compliance) Risk Management
Reviewers/ Inspectors	Anton Garabetian Stephen Artus	Person(s) Contacted	Michael Burns (General Manager) Donald Smith (Chief Operations Officer) Bill Lopez (Chief Administrative Officer)
REFERENCE CRITERIA			
1. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 1 through 6			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Executive Management Involvement and Commitment to Safety</p> <p>Conduct the necessary interviews of executive management as necessary to evaluate the scope of Management involvement, coordination, and communication for improving the System Safety Program Plan. Specific commitments of review should include the following tasks:</p> <ol style="list-style-type: none"> 1. Determine the source, frequency, and depth of safety information provided to the General Manager 2. Determine the methods and incentives included in the management performance system to facilitate a system safety culture within the organization. 3. Determine the involvement of management in accident/hazardous condition investigations and corrective actions. 4. Determine the level where key safety and security decisions are made and the involvement of the management team in these decisions. 5. Determine the level and depth of Management review and follow-up on corrective actions, including those initiated by accidents, hazardous conditions, internal audits, and triennial audits. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff interviewed SCVTA General Manager, Chief Operations Officer, and Chief Administrative Officer to determine SCVTA executive management involvement, coordination, and communication to improve System Safety and Security Programs.</p> <p>The SCVTA General Manager receives safety and security reports on daily basis. The SCVTA office configuration allows the General Manager to be in constant contact with Safety and Security personnel.</p>			

The SCVTA Operations and Safety Departments report all major accidents to the General Manager. Operations Department also provides monthly incident statistics to the General Manager. Based on any major incident and overall incident statistics, the General Manager meets with the personnel of applicable departments on how to mitigate the incidents and approve capital budget to improve the system configuration. The General Manager gave special attention to motor vehicles left turn intrusions. SCVTA funded capital resources to CALTRAIN to improve safety for the commuter rail. The SCVTA management has permanent interest in safety by establishing safety goals. For example, the SCVTA goal is to reduce the preventable accident rate to one per year. After the Metrolink accident in Chatsworth, SCVTA conducted a study regarding signals visibility and improving system equipment. The SCVTA management supports the CPUC cellular telephone Rulemaking. Very often, the General Manager calls Safety Department directly to be updated on safety issues.

According to the General Manager, Security Department has a good structure. The SCVTA security force supplements the Sherriff Department. He gets reports on all the serious security incidents, even though there hasn't been any serious security incident on the SCVTA system recently. The management is also well aware of all the security issues occurring throughout the rail industry. SCVTA improved security by installing cameras at the station platforms and inside the rail vehicles.

According to the Chief Administrative Officer, SCVTA has incentives to promote safety. SCVTA has an Operators Safety Awards Program for light rail operators. Beginning at one year without an accident, SCVTA provides a small pin and patch for the operator's uniform, with increasing awards with additional years of accident free operation. The recognition awards increase in value with additional years, including bronze and silver belt buckles; a plaque at 1 million miles (and each million miles thereafter), a watch at 15 years and a gold ring at 20 years with small diamonds inserted in the ring for additional years. SCVTA recently had an operator receive a 40 year award. This program is fully funded and very popular with SCVTA operators.

The SCVTA General Manager receives a copy of the internal safety audit reports, reviews and signs them off. He also receives the triennial review reports and makes sure SCVTA completes the items on the corrective action plan (CAP).

The Risk Department Manager holds Rail System Safety Board (RSSRB) meetings every month to review and act on various safety issues. The Chief Administrative Officer reviews the meeting minutes and discusses safety issues with the Risk Department Manager.

Several years ago, the Transit Security Administration (TSA) personnel performed threat and vulnerability of assessment of the SCVTA rail system. Accordingly, SCVTA installed fencing and cameras around facilities, implemented security training, and installed tunnel and flyover intrusion alarm systems.

Overall, the SCVTA executive management is well aware of system safety and security issues and is committed in improving system safety and security of the rail system.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	2	Subject	Signal Communication, Train Control, Grade Crossing – CPUC Signal Inspector
Date of Review	January 24 & 25, 2010	Departments	Way, Power and Signals
Reviewers/ Inspectors	Thomas Govea	Persons Contacted	Thomas Hardesty (Signal Supervisor)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> General Order 164-D: Section 3.2 Rules n, o; Section 3.3 General Order 127 General Order 75 Code of Federal Regulations CFR 49, Part 234, Grade Crossing Signal System Safety System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 11 & 24 CPUC 2007 VTA Triennial Safety Audit, Recommendations 1 & 2 (Checklist 3) MTN-PR-6205 – Grade Crossing Warning System Inspection and Preventive Maintenance, Version No. 2, Dated September 5, 2008 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
Signal Communication, Train Control and Grade Crossing Safety Inspection-CPUC Signal Inspector <ol style="list-style-type: none"> Train Control & Communication Inspection <ol style="list-style-type: none"> Perform detailed inspections of the train control and communication systems and components to determine whether or not they are in compliance with the applicable reference criteria. Randomly select at least one section for each line. VTA's Track and Turnout and Crossing Maintenance <ol style="list-style-type: none"> Perform detailed inspections of the mainline switches and crossing's components to determine whether or not they are in compliance with the applicable reference criteria Randomly select at least six grade crossings of the mainline. Select two grade crossings for each line. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff inspected and observed VTA personnel performing operation, maintenance, and test activities for the following location.</p> <ol style="list-style-type: none"> Train Control & Communication <ol style="list-style-type: none"> Tasman West Line SC081 Case – Interlocking Controls Vasona Line Diridon ST32 Control House – Interlocking Controls 			

- c. Tasman East Line Alum Rock – Interlocking Controls
- d. Guadalupe Line Almaden – Communication Controls

2. VTA's Track and Turnout and Crossing Maintenance

- a. Central Expressway Crossing – CPUC# 82B-13.08
- b. Switch 130 SC081 Test Turnout / Signal B130
- c. Middlefield Crossing & Pedestrian Crossing – CPUC# 82B-12.4
- d. Middlefield East Pedestrian Crossing – CPUC# 82B-12.30
- e. Innovation Way East Crossing – CPUC# 82B-10.04
- f. West San Carlos Crossing – CPUC# 82D-3.49
- g. Switch 2034 & 2031 Test Crossovers ST32
- h. Diridon Station Pedestrian Crossing (82D-3.13-D & 82D-3.19-D)
- i. Winfield Crossing – CPUC# 82L-0.33
- j. Blossom River Way Crossing – CPUC# 82L-0.55
- k. Almaden L1R Switch Test at Turnout
- l. Switch 1123 & 1125 Test Alum Rock
- m. Alum Rock Station Pedestrian Crossing
- n. Bay Pointe Pedestrian Crossing BP545 – 82C-4.52-D
- o. Race Station Pedestrian Crossing - CPUC# 82D-4.06

Findings:

- a. Central Expressway Crossing #82B-13.08,
- b. Barrier gate has been removed from service in 2005, Case XC074A print did not reflect the gate being out of service, which is not in compliance with CFR 234.201 and MTN-PR-6205 4.3.1.a. During inspections was corrected in field.
- c. Gate "C" and "D" gate arm height of 3 feet 2 inches from crown of road; fails to meet GO 75-D minimum requirements and MTN-PR-6205 4.5.4.d. During inspections was adjusted in field.
- d. Middlefield Crossing #82B-2.40 Gate "C" 3 feet 2.5 inches and Gate "D" 3 feet 4.5 inches, indicate gate arm height fails to meet GO 75-D minimum requirements and MTN-PR-6205 4.5.4.d. During inspections was adjusted in field.
- e. Innovation Way East #82B-10.04 Gate "B" arm height 3 feet 4 inches fails to meet GO 75-D minimum requirement and MTN-PR-6205 4.5.4.d.
- f. West San Carlos Crossing #82D-3.49 Gate "D" 3 feet 4 inches and Gate "D" 3 feet 5.5 inches fails to meet GO 75-D minimum requirements and MTN-PR-6205 4.5.4.d.
- g. Winfield Crossing #82L-0.33
- h. No Emergency Notification sign at crossing, fails to meet GO 75-D Section 5.
- i. No Trolley Advance Warning sign (W-82) for westbound traffic, fails to meet GO 75-D.
- j. Blossom River Way #82L-.055
- k. No Emergency Notification sign at crossing, fails to meet GO 75-D Section 5.
- l. Pavement marking and Stop line are not visible, not in compliance with GO 75-D Section 4.
- m. Almaden switch L1-R passed the ¼" obstruction test, but failed the 1/8" obstruction test as required by GO 127 Section 3.15.

Comments

1. Middlefield Station West Pedestrian Crossing is not in compliance with GO 75-D Section 4. CA MUTCD Section 10D.08 states Pedestrian signals shall be in accordance with Section 4E.04. Pedestrian indications should be conspicuous and recognizable to pedestrian at all distance from the beginning of the controlled crosswalk to a point 10 feet from the end of the controlled crosswalk during both day and night.
2. Central Expressway Crossing #82B-13.08 Structure for Barrier Gate still on site and operating case XC074-C still being maintained. VTA's letter Dated February 18, 2005, VTA is preparing a request for the Commission approval for permanent removal of barrier gate.
3. Race Station East Pedestrian Crossing is not in compliance with GO 75-D Section 4. CA MUTCD Section 10D.08 states Pedestrian signals shall be in accordance with Section 4E.04. Pedestrian indications should be conspicuous and recognizable to pedestrian at all distance from the beginning of the controlled crosswalk to a point 10 feet from the end of the controlled crosswalk during both day and night.
4. Staff recommends yearly gate height inspections to be included to be performed monthly.

Recommendations:

VTA should inspect its grade crossings and produce documentation showing full compliance with GO 75-D and MTN-PR-6205 requirements.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	3	Subject	Track, Switch, and Turnout Inspection - CPUC Track Inspector
Date of Review	January 24 & 25, 2011	Department(s)	Way, Power and Signals
Reviewers/Inspectors	John Madriaga	Person(s) Contacted	Nick Gonzalez (Track Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
3. Code of Federal Regulations CFR 49, Part 213, Track Safety Standards
4. General Order 143-B, Section 14.05, Track Maintenance Practices and Records.
5. MTN-PR-6403 - Wayside (Track and Right-of-Way) Inspections, Dated December 5, 2005
6. MTN-PR-6405 - Track Geometry Standards, Dated September 15, 2000
7. MTN-PR-6406 - Inspection and Maintenance of Ballast, Dated September 15, 2000
8. MTN-PR-6407 - Inspection and Maintenance of Ties, Dated September 15, 2000
9. MTN-PR-6408 - Inspection and Maintenance of Rail, Dated September 15, 2000
10. MTN-PR-6410 - Inspection and Maintenance of Joints, Dated September 15, 2000
11. MTN-PR-6411 - Inspection and Maintenance of Continuous Welded Rail (CWR) Track, Dated September 15, 2000
12. MTN-PR-6415 – Inspection and Maintenance of Turnouts and Diamond Crossings, Dated September 15, 2000
13. MTN-PR-6416 – Inspection and Maintenance of Rail Crossings, Dated September 15, 2000

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Track, Switch, and Turnout Inspection - CPUC Track Inspector

1. Randomly select at least two sections of the mainline track, two switches, one crossover, and one turnout on the mainline from each of the following lines: Guadalupe, Vasona, and/or Tasman.
2. Perform visual and dimensional inspection/measurements to determine whether or not all track components are in compliance with the applicable reference criteria.

RESULTS/COMMENTS

Activities:

Staff inspected the following:

1. Two sections of mainline track on the Tasman Line between Bay Pointe and Cisco Way and between Hostteter and Penitencia;

2. Two switches, S - 1050 and S -1106,
3. Crossover PR -1120
4. Turnout S - 69
5. Two Sections of the mainline track on the Guadalupe Line between Tasman and Bonaventura and Metro Airport;
6. Two switches S-27 and S-27a;
7. Crossover PR-1b and PR-1a;
8. Turnout RP-5

No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	4	Subject	Light Rail Vehicle Inspection - CPUC Equipment Inspector
Date of Review	January 25, 2011	Department	Vehicle Maintenance
Reviewers/ Inspectors	Michael Borer	Person(s) Contacted	James Ersted (Equipment Superintendent)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> General Order 164-D: Section 3.2 Rules n, o; Section 3.3; General Order 143-B, Section 14.04, Light Rail Vehicle Maintenance Practices and Records System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11 MTN-PR-5149 – Daily Inspection – KI Light Rail Vehicles, Dated January 20, 2006 MTN-PR-5158 – Light Rail Vehicle Maintenance Work Orders, Dated September 24, 2001 MTN-PR-5120 – Light Rail Vehicle Inspections and Reprofitting, Dated October 29, 2003 MTN-PR-5156 – Preventive Maintenance (PM) Scheduling for Light Rail Vehicles, Dated August 21, 2001 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Light Rail Vehicle Inspection - CPUC Equipment Inspector</p> <ol style="list-style-type: none"> Randomly select at least five Kinkisharyo (KI) cars from the available trains in the maintenance shop and perform detailed inspections to determine if VTA is properly and adequately mainlining: <ol style="list-style-type: none"> Traction motors Truck/wheel components Brake systems Doors and pantograph assemblies Coupling mechanism Passenger component/safety compliances Operator cab/appurtenance Based on the review and the inspections, determine whether or not the selected LRVs are in compliance with the applicable reference criteria. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff conducted and observed an inspection/repair of the KI Cars.</p>			

Staff inspected random KI Light Rail Vehicles that included Traction Motors, Truck/Wheel components, Brake system, Doors, Coupling, Operator cab and Safety compliance.

Staff conducted inspections on the following KI Light Rail Vehicles:

Car # 959 - No Defects

Car # 974 - No Defects

Car # 914 - No Defects

Staff also tested the audible warning devices on two KI Light Rail Vehicles as per GO 143-B requirements:

Car# 920 B Low Bell 77dba High Bell 81dba Low Horn 83dba High Horn 89dba

Car# 930 A Low Bell 76dba High Bell 80dba Low Horn 84dba High Horn 85dba

The records were well maintained and easily accessible to staff.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	5	Subject	Train Operator, Line Supervisor, and Central Control Supervisor Training and Recertification
Date of Review	January 27, 2011	Department(s)	Light Rail Technical Training, Service Management Unit (OCC/Field Operations)
Reviewers/ Inspectors	Colleen Sullivan Donald Filippi	Person(s) Contacted	John Steck (Light Rail Technical Training Supervisor) Jerry Horner (Light Rail Technical Trainer) Dean Palmquist (Rail/Bus Technical Trainer)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2 Rules p; 2. General Order 143-B, Sections 12.02, 13.03 and 14.03 3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 13 4. Light Rail Operating Rulebook, Dated June 1, 2009, Chapter 10 – Historic Streetcar Operation 5. SOP #1.5 – Operator Certification, Dated November 14, 2001 6. SOP #1.9 – Light Rail Operator Retraining/Refresher, Dated April 18, 2001 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Train Operator, Line Supervisor, and Operations Control Center (OCC) Supervisor Training and Recertification – CPUC Operations Inspector</p> <p>Interview VTA representative in charge of the Train Operator, Line Supervisor and Controller Certification Program to determine whether or not:</p> <ol style="list-style-type: none"> 1. VTA complied with the requirements of the certification program according to the reference criteria 2. The training program has been reviewed and modified as necessary to meet training and recertification requirements. 3. Randomly select at least five VTA employees in each of the following classifications: <ol style="list-style-type: none"> a. Train Operator b. Train Controller c. Light Rail Supervisor d. Way, Power and Signal workers e. Motormen/Conductors of Historic Streetcars 4. Review their training, certification, and re-certification records for the past three years to determine if they are complete, current, and in compliance with the reference criteria and programs. 5. Verify if VTA developed a training plan and trained its employees in accordance with the Light Rail Standard Operating Procedure. 6. Verify if VTA has a tracking mechanism in place for the required training and certifications for each employee classification. 7. VTA has an approved procedure for training and certification for the Motormen and/or Conductors of Historic Streetcars 			

RESULTS/COMMENTS
<p><u>Activities:</u></p> <p>Staff interviewed VTA's Light Rail Technical Training Supervisor. Staff asked about how VTA has complied with the requirements of its certification program according to the reference criteria. Also, staff asked this supervisor to explain how VTA's training program has been reviewed and modified as necessary to meet training and recertification requirements.</p> <p>Staff randomly selected at least five VTA employees from the following job classifications: Train Operator, Train Controller, Light Rail Supervisor, Way, Power and Signal Workers, and Motormen and/or Conductors of Historic Streetcars. Staff reviewed their training, certification, and re-certification records for the past three years to determine if they were complete, current, and in compliance with the reference criteria and programs.</p> <p>Staff also interviewed the Light Rail Technical Training Supervisor to verify that VTA has developed a training plan and trained its employees in accordance with the Light Rail Standard Operating Procedure. Staff also verified that VTA has a tracking mechanism in place for the required training and certifications for each employee classification. Finally, staff verified that VTA has an approved procedure for training and certification for the Motormen and/or Conductors of its Historic Streetcars.</p> <ol style="list-style-type: none">1. VTA's Train Operator, Line Supervisor, and Central Control Supervisor Training and Recertification program is in compliance. VTA is following its Light Rail Operating Rulebook and its Standard Operating Procedures.2. Staff noted that VTA has not operated its Historic Streetcars since December 2008 due to budget constraints. <p><u>Findings:</u></p> <p>None.</p> <p><u>Recommendations:</u></p> <p>None.</p>

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	6	Subject	Operation Safety Compliance Program Inspection
Date of Review	January 24 & 25, 2011	Department(s)	Risk Management and Transportation – Rail Operations and Operations Central Control
Reviewers/ Inspectors	Donald Filippi	Person(s) Contacted	Garry Stanislaw (Transportation Superintendent) John Carlson (OCC Superintendent) Bruce Turner (Transit Systems Safety Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules m
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 12
3. Light Rail Operating Rulebook, Dated June 1, 2009
4. Standard Operating Procedures Manual
5. Train Operator Ride Check Report
6. OPS-PL-0001 – Use of Communication Devices While Operating Bus or Light Rail Vehicles, Dated June 16, 2009

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Operation Safety Compliance Program Review

Interview VTA's representative(s) responsible for Operations Safety, observe/inspect operations, and review documentation as necessary to determine whether or not:

1. Maintenance of Way - Wayside Workers
 - a. Coordinate at OCC to locate and observe access authority provisions and procedures for wayside workers to determine whether or not they follow according to the documents under the reference criteria
 - b. Interview at least one VTA wayside worker to evaluate their knowledge and understanding of VTA's Operating Rules and Procedures relative to mainline operations
2. Revenue Operations – Train Operators
 - a. Perform an inspection of one or two departing VTA train operators operating revenue vehicles to determine if they have all of the required safety items.
 - b. Perform a "check ride" and observe, the operations of at least two VTA trains in revenue service on the mainline to determine if:
 - i. Each VTA train operator performs in compliance with the Light Rail Operating Rulebook, Train orders and updated bulletins.
 - ii. Each VTA train operator possesses the required on-board safety equipment.
 - iii. Each operator does not possess any personal electronic equipment visible in the cab such as cellular phones, mp3 players, pagers, etc as per VTA rules.
 - c. Observe at least one coupling procedures to determine whether or not they follow operating rules and procedures
 - d. Interview at least two VTA train operators to evaluate their knowledge and understanding

of VTA's Operating Rules and Procedures relative to mainline operations.

3. Operations Central Control – Train Controller

- a. Applicable reports, logs or records are properly prepared, maintained, and available upon request for review
- b. Duties are performed in accordance with the SOPs, Controller Manual including all Bulletins, General Notices and Special instructions.
- c. VTA Train Controllers are knowledgeable in dealing and coordinating with other agencies during incidents, accidents, and emergency response situations.

RESULTS/COMMENTS

Activities:

1. Staff arrived at Champion Station and observed SCVTA Wayside personnel working while under protection from OCC. Staff questioned SCVTA personnel on the Wayside Protection process and Wayside Protection safety rules as they related to the specific task. Staff questioned SCVTA personnel on the procedures for job briefings, work time allowed, and operating rules related to wayside personnel. (Employee # 12622)
2.
 - a. Staff interviewed employees at Guadalupe Yard for knowledge of Operating rules and procedures. (Employees # 3020, 5804) Staff questioned the SCVTA personnel on a number of safety related procedures taken directly from SCVTA's Operating Rule Book. Staff verified that SCVTA personnel had the required items needed to operate main line trains during revenue service.
 - b. Staff also observed a coupling at Alum Rock Station made by (Employee # 11885). This employee made a routine coupling between 930B and 940A and proceeded to the next station. Staff also observed the employees procedure during the coupling process as related to the safety of passengers.
 - c. Staff saw no evidence of SCVTA personnel violating the Personnel Electronic Device policy during any portion of the checklist observations.
 - d. Staff performed train ride observations with several SCVTA Operators to determine their level of compliance with SCVTA Safety Procedures.

Staff observed (Employee #12058) and found no exceptions.

Staff observed (Employee #2565) and found no exceptions.

Staff observed (Employee # 12591) Operator did not have train orders in the cab while operating through a number of main line work zones.

Staff observed (Employee #9653) and found no exceptions.

Staff observed (Employee #2507) and found no exceptions.

- e. Staff observed (Employee #329 and #325) in the Operations Control Center for SCVTA Policy and Procedure compliance. Staff questioned the Controllers on rules and safety issues as they relate to operating. Staff reviewed Radio logs, RWP procedures, Emergency response, and SCVTA SOP's. Staff found that both Controllers where knowledgeable on the Emergency Response procedures as well as Wayside Protection policies.
- f. Operator #12591 did not have Train Orders in the cab while operating on the main line since the line instructor accompanying the Operator#12591 at that time took the train orders along with him as he stepped out of the cab to meet with the other VTA personnel. This is in direct violation of the SCVTA Light Rail Operating Rule Book. Finally, staff was informed that SCVTA management took immediate action to make personnel aware of the finding as well as the

applicable rules. No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	7	Subject	Hazard Management and Safety Data Acquisition Analysis
Date of Review	January 25, 2011	Department(s)	Risk Management & Operations
Reviewers/ Inspectors	Jimmy Xia	Person(s) Contacted	Bruce Turner (Transit Systems Safety Supervisor) Garry Stanislaw (Transportation Superintendent of Light Rail)
REFERENCE CRITERIA			
1. General Order 164-D: Section 3.2 Rules f, i 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 7 & 16.			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Hazard Management and Safety Data Acquisition Analysis</p> <p>Interview the VTA representative(s) and review appropriate records to determine whether or not:</p> <ol style="list-style-type: none"> VTA has an acceptable process for managing hazards to its system which is coordinated with other important activities such as accident/incident investigation and safety data collection and analysis. The above process was followed to identify, categorize, and bring hazards down to acceptable levels of risk (provide specific examples). <ol style="list-style-type: none"> Hazard analysis and reports are completed and performed on a periodic basis Hazards identification notification should include but are not limited to <ul style="list-style-type: none"> - Equipment failure - Rule and procedure violations - Trespassing/jaywalking - Vehicle unauthorized entry VTA has a documented process for the collection and analysis of unsafe trends due to external uncontrollable factors that may impact the system's operations The process was followed for identifying safety issues and resulted in recommendations that were implemented 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff interviewed the VTA representatives and reviewed the following records related to VTA's hazard management and safety data acquisition / analysis processes:</p> <ol style="list-style-type: none"> Active Right of Way Review Committee Items Raised in Committee Meeting matrix/report, dated 8/24/10 Unusual Occurrence Reports dated 7/20/10, 9/23/10, and 12/30/10 			

3. Light Rail Occurrence Statistics report for the September – October 2010 period, dated 10/26/10
4. Left Hand Turn Work Group Report on Recommendations for System Improvements to Reduce Illegal Left Turns, Pedestrian/Vehicle Near Misses, Track Intrusions and Reconfigure Gated Crossings on the Light Rail System, dated 2/9/10
5. Contract document titled Light Rail Left Hand Turn and Track Intrusion Project Phase IIA that was issued on 1/20/11
6. Hazard Tracking matrix/report dated 1/4/11
7. Enterprise Risk Management Vegetation Project report for the 2008/2009 period

Review Results:

1. VTA has the following committees that contribute to analyzing and mitigating hazards: Active Right-of-Way (ROW) Review Committee, Rail Systems Safety Review Board (RSSRB), Fire / Life Safety (FLS) Committee, ATU Joint Safety Committee, Track Allocation Committee, Accident Review Committee, and Corrective Action Group Committee.
2. The Active ROW Review Committee identifies things on the ROW that are inconsistent, incorrect, or possibly safety issues. For each issue raised during the monthly Active ROW Review Committee meetings, VTA performs hazard analysis according to its SSPP, Version No. 10, dated 2/1/2010, Element 7, to come up with recommendations to resolve the issue. The committee first analyzes the item to determine whether it is low risk, medium risk, or high risk using the Risk Assessment Index as shown in the SSPP, Version No. 10, dated 2/1/2010, Element 7, and then assigns a hazard risk index to it. Then, VTA tracks every identified item through corrective action and resolution.
3. VTA has all the agencies needed for diagnostics of mitigations and at intersections to determine what mitigations are most useful in minimizing hazards.
4. VTA also has a Corrective Action Group meeting once a month where many executive managers attend to review recommendations resulting from incidents involving a Light Rail Vehicle (LRV) that's reportable to CPUC and make sure problems identified are tracked to resolution.
5. Through VTA's various committees' meetings, VTA identifies, categorizes, and brings hazards down to acceptable levels of risk. VTA's process for managing hazards to its system as mentioned above was followed to identify, categorize, and bring hazards down to acceptable levels of risk.
6. VTA collects unsafe trends and enters them in various databases, the Light Rail Occurrence Statistics reports, Active ROW Review Committee Items Raised in Committee Meeting spreadsheets, and Hazard Tracking spreadsheets for analysis depending on nature of the issue on a continuous basis. All the unsafe trends are reviewed on a monthly basis in all meetings that are held by the RSSRB, Active ROW Review Committee, and FLS Committee.
7. VTA has multiple backups for tracking hazards.
8. The safety data acquisition / analysis process was followed through the various kinds of hazard reports that staff reviewed, and every safety issue is tracked and followed through until it is mitigated. The process resulted in recommendations and they are tracked to completion. VTA documents and tracks the recommendations and their status until they are closed in the hazard analysis reports.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	8	Subject	Safety and Security Certification
Date of Review	January 26 & 28, 2011	Department(s)	Risk Management, Engineering and Construction
Reviewers/ Inspectors	Rupa Shitole	Person(s) Contacted	Carolyn Gonot (Chief SVRTP Program Officer) Laila Mahroom (SVRTP System Safety & Security Manager) Joshua Teo (BART System Safety Engineer) Adolf Daaboul (VTA Senior Transportation Engineer) Bruce Turner (VTA Systems Safety Supervisor)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> General Order 164-C: Sections 7 & 8 General Order 164-D: Section 3.2 Rule h; Section 11 System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 15 Safety and Security Light Rail Design Criteria, Dated January 2011 Light Rail Safety Certification Plan, Dated March 2007 Safety and Security Certification Plan for BART VTA Silicon Valley Rapid Transit Project (SVRTP) Dated September 11, 2006. 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Safety and Security Certification</p> <p>Interview the VTA representative in charge of the Safety Certification Program and review the VTA Safety Certification conformance criteria and any other supporting documents for current or planned projects to determine whether or not:</p> <ol style="list-style-type: none"> The Safety Certification Plan is in conformance with the General Order 164C or D which ever is applicable. Effective communications and liaison with CPUC staff throughout the life of the current and planned projects including Preliminary Engineering Design Phase. All design and construction changes were properly coordinated and addressed in the safety certification process All identified hazards have been eliminated or controlled as required under the Safety Certification Plans Submittal elements for Safety Certified projects during the past three years were identified for the Safety Certification Verification Report and submitted to the CPUC in a timely manner according to General Order 164-D VTA staff in charge of the SVRT project follows-up with BART and others as required and have a process in place to mitigate any discrepancies and open items and are tracked in a timely manner. 			

RESULTS/COMMENTS

Activities:

Staff interviewed SVRTP representatives from the VTA Department at Milmont office in Milpitas on 1/26/11 that are responsible for certifying the safety and security of the VTA contracted design, construction, testing, contractor training, contractor operations and maintenance manuals, and support to emergency service training and drills in conjunction with BART for SVRTP. Also, Staff met with VTA representatives from the Constructions Department on 1/28/11.

(Related to SVRTP Project)

1. SVRTP Safety and Certification Plan were issued to CPUC in August 2006 in accordance to GO 164-C for Commission approval. CPUC approved this plan through resolution ST-83 issued February 15, 2007. This SVRTP Safety and Security Certification Plan have been updated according to GO 164-D to address the Silicon Valley Berryessa Extension (SVBX) and the latest organization structure. This plan will be ready for CPUC submittal upon finalization of the organization structure and sign off by VTA and BART.
2. BART System Safety has the responsibility for formal communications, submittals of the SVBX safety related issues and activities with CPUC. Informal communications and liaison with CPUC staff is provided through Fire, Life, Safety and Security Committee (FLSSC) and Safety and Security Review Committee (SSRC) meetings, or directly with staff as needed.
3. SVBX project is currently in the Preliminary Engineering (PE) phase. The design criteria established for the SVBX is BART Facilities Standards (BFS). The SVBX has also established change control processes through the Design Change Control Committee and Change Control Board.
4. A Preliminary Hazard Analysis (PHA) report was performed for the SVRTP and issued February 2006. But due to the recent BFS revision, the Design Build Contractor is responsible for performing a PHA for the updated design configuration. The hazards identified in the current PHA are being tracked into the Hazard Tracking Matrix.
5. SVRTP PHA was submitted to CPUC for information. The PE Design Conformance checklists have been developed and are in verification process and these along with PE Conformance certifications will be submitted to CPUC prior to issuance of the last addendum for contract.
6. Safety and security open items are formally tracked through resolution as part of the FLSSC and SSRC functions. During PE, outstanding open issues, including those related to safety and security, are also itemized and tracked in a SVBX Workshop List and resolved with BART through routine BART/VTA Workshops or separately through individual meetings or correspondence. Formal tracking of open safety and security items will be part of the Safety and Security Progress Reports.

(Related to VTA Projects)

1. The Capitol Expressway Light Rail Safety and Security Certification Plan dated March 2, 2007 was in conformance with GO-164-C.
2. VTA does maintain effective communications and liaison with CPUC staff throughout the life of the current and planned projects including Preliminary Engineering Design Phase through RSSRB meetings and or directly with staff as needed.
3. Staff reviewed internal VTA safety certification projects such as Contract No. C10111F, 09074, C10092. No exceptions were noted.
4. VTA does PHA and then Final Hazard Analysis during PE and final design construction. Staff reviewed PHA for contract C640 (07008F). No exceptions were noted.
5. During the last three years, VTA did not have any major or Safety Certifiable projects submitted to CPUC for approval so there were no records for review. A project tracking log was provided to staff

for review that listed both major and rehabilitation projects in progress.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	9	Subject	Accident Reporting and Investigation
Date of Review	January 27, 2011	Department(s)	Risk Management, Transportation, Maintenance Engineering
Reviewers/ Inspectors	Colleen Sullivan Rupa Shitole	Person(s) Contacted	Bruce Turner (Transit Systems Safety Supervisor) Robert Daniels (Transportation Supervisor) Art Douwes (Operations Manager, Engineering)

REFERENCE CRITERIA

1. Code of Federal Regulations, CFR 49 Parts 659.41 & 659.43
2. General Order 164-D: Section 3.2 Rule j; Sections 7 through 9
3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 8
4. VTA SOP 530 (LRA-PR-0530), Light Rail Accident/Incident Investigation/ Reporting Procedures, Dated June 2, 2010
5. OPS-PR-0025 Light Rail Impound Procedure, Dated September 17, 2007
6. SOP #9.14 Accident Investigation Procedures, Dated October 1, 2003

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Accident Reporting and Investigation

Interview VTA representative(s) directly involved in accident reporting and review appropriate documentation since 2008 to determine whether or not:

1. Both VTA Safety and Security are present to investigate required accidents on site.
2. Review and determine whether or not VTA is investigating accidents on behalf of CPUC staff as required by SOP 530.
3. Also check if monthly corrective action plans for accidents/hazards are entered into Form V Section C.

Interview VTA representative(s) and review at least six reportable accident reports submitted to the CPUC since 2008 to determine whether or not:

1. All accidents meeting the requirements of General Order 164-D were reported to the CPUC within the required time
2. The accident investigation activities and reports were in accordance with the reference criteria
3. The most probable cause was identified and supported by findings.
4. Recommendations from VTA Systems Safety Supervisor for corrective actions are reviewed by the responsible persons and implemented into corrective action plans in a timely manner.
5. Corrective action plans are submitted to CPUC for approval and tracked until completion.

RESULTS/COMMENTS

Activities:

Staff interviewed VTA's System Safety Supervisor who is responsible for investigating and providing accident investigation reports to CPUC as required by GO 164-D. Also, staff interviewed and verified the following with VTA representatives and found:

1. VTA Safety and Security personnel are present to investigate required accidents on site.
2. VTA is investigating accidents on behalf of CPUC staff as required by VTA SOP 530 and GO 164-D.
3. VTA is submitting all reportable accidents reports to CPUC on time. Staff reviewed the documentation on ten of these reports from the years 2008, 2009, and 2010. Staff verified that these accidents met the requirements of General order 164-D and were reported to the CPUC within the required time. Also, staff verified that the accident investigation activities and reports were in accordance with the reference criteria and that the most probable cause was identified and supported by the findings. Staff also verified that recommendations from VTA's Systems Safety Supervisor for corrective actions are reviewed by the responsible persons and implemented into corrective action plans in a timely manner.
4. VTA submits Form V as required to CPUC on a monthly basis.

Review Results:

1. All reportable accidents that met the requirements of General Order 164-D were reported to the CPUC within the required time.
2. VTA's accident investigation activities and reports were in accordance with the reference criteria.
3. VTA's most probable cause for various accidents were identified and supported by findings.
4. Recommendations from VTA's Systems Safety Supervisor for corrective actions are reviewed by the responsible persons and implemented into corrective action plans in a timely manner.
5. No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	10	Subject	Emergency Response Planning, Coordination and Training
Date of Review	January 28, 2011	Department(s)	Risk Management & Protective Services
Reviewers/ Inspectors	Rupa Shitole	Person(s) Contacted	Nanci Eksterowicz (Risk Manager) Bruce Turner (Transit Systems Safety Supervisor) Cathy Hendrix (Senior Management Analyst) Captain Robert Schiller (Chief of Security)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rule k
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 14
3. VTA System Emergency Operations Plan
4. Code of Federal Regulations, 49 CFR Part 659, Section 659.23

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Emergency Response Planning, Coordination and Training

Interview VTA representative(s) responsible for Emergency Preparedness Program, Coordination and Training program and review records and documentation for the last three years to determine whether or not:

1. The Emergency Operations Plan is reviewed and revised as necessary by the Risk Management Department on an annual basis. All revisions will be approved by the RSSRB, Chief Operating Officer and the General Manager.
2. Regularly scheduled meetings are conducted with appropriate external agencies (local, state, and federal agencies) to coordinate emergency response planning
3. Mutual aid agreements or memorandum of understandings are established with external agencies
4. Emergency drills that included tabletop and practical exercises were planned and carried out with the involvement of appropriate external agencies
5. Training is made available to all relevant emergency response agencies in the areas where VTA operates.
6. All drills were performed regularly and any deficiencies or participant critiques were documented, scheduled and tracked to completion.
7. Emergency planning addresses both accidental emergencies as well as security related emergencies.
8. The SSPP describes or references how VTA documents the results of its emergency preparedness evolutions (i.e. briefings, after action report recommendation/findings and corrective actions)
9. Communications systems are tested for interoperability with appropriate emergency response agencies

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA representatives responsible for the Emergency Preparedness Program, Coordination and Training program.

1. The Emergency Operations Plan is reviewed once in every three years and is signed by the General Manager. The current plan is signed and dated on May 15, 2009.
2. VTA attends or hosts the following monthly or quarterly meetings with appropriate external agencies:
 - Metropolitan Transportation Commotion (MTC) TRP Steering Committee
 - Santa Clara County Emergency Manager's Meeting
 - County Disaster Council Meeting
 - VTA Fire Life Safety Meeting
 - Bay Area Transit Safety Professional Round Table Meeting
3. Mutual aid agreements or memorandum of understandings are established with external agencies
4. As per VTA's System Safety Program Plan (SSPP), VTA is required to do one emergency drill and one table top exercise every year. VTA provided staff a list of the drills, table tops and or practical training VTA has participated in during the last three years 2008, 2009, and 2010. During 2010, VTA had two table top exercises and two emergency drills to satisfy the requirements for the years 2009 & 2010.
5. VTA provides training to first responders covering all the cities that it operates. Also, VTA conducts annual training exercises with responding agencies and train all working shifts. Additionally, VTA provides practical training to SWAT teams from different cities.
6. VTA emergency drills were performed and well documented. Deficiencies and/or participant critiques were well documented in separate binders for each drill. Since no major deficiencies were noted VTA had none to track.
7. VTA's Emergency Planning addresses both accidental emergencies as well as security related emergencies.
8. VTA's SSPP states "All drills are evaluated and critiqued for the benefit of VTA and the emergency response agencies".
9. VTA Protective Services conducted testing of the blue light phones on VTA's Light Rail Platforms in September/October 2010. Also, VTA has maintenance procedures MTN-PR-6201 that tests for communications interoperability with emergency response agencies.

Review Results:

1. Staff found VTA's Emergency Preparedness Program, Coordination and Training program to be in order.
2. Staff found all records were properly documented.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	11	Subject	Internal Safety Audit Program
Date of Review	January 26, 2011	Department(s)	Risk Management
Reviewers/ Inspectors	Erik Juul	Person(s) Contacted	Bruce Turner (Transit Systems Safety Supervisor)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2 Rule I, Section 5 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 9 3. Code of Federal Regulations, 49 CFR Part 659, Section 659.23 4. CPUC 2007 VTA Triennial Safety Audit, Recommendation 5 (Checklist 7) 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Internal Safety Audit Program</p> <p>Interview the VTA representative(s) in charge of the Internal Safety Audit (ISA) Program and review the audit reports for year 2008-2010 and determine whether or not:</p> <ol style="list-style-type: none"> 1. All of the required safety program elements were covered within a three year audit cycle and in compliance with the SSPP. The audits were evaluated by qualified auditors who are independent from the first line of supervision responsible for performance of the activity being audited. 2. The ISA reports were prepared with the General Manager's certification and submitted to the CPUC by February 15th of each year and corrective action plan recommendations were prepared, tracked and implemented in a timely manner. 3. Invitations were provided to CPUC for scheduled internal safety audits. Any changes to the schedule set for the year was also transmitted to the CPUC. 4. The findings, recommendations, and CAPs from the ISA are evaluated and directed to the appropriate responsible persons with CAPs tracked until completion. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff interviewed the VTA representatives to determine their involvement in the VTA Internal Safety Audit (ISA) Program.</p> <p><u>Review Results:</u></p> <p>All of the required safety program elements were covered within a three year audit cycle (calendar years 2008, 2009, & 2010) and in compliance with the SSPP. Staff reviewed the General Manager's certification letters to Commission staff dated February 11, 2009 and February 11, 2010. The audits were evaluated by qualified auditors who are independent from the first line of supervision responsible for performance of the activity being audited. Staff reviewed the VTA Internal Audit Tracking Schedule which is sent to RTSS</p>			

staff. RTSS staff is notified of date changes and personnel changes, if applicable. Staff reviewed documents containing the findings, recommendations, and CAPs from the ISA which are evaluated and directed to the appropriate responsible persons, with CAPs tracked until completion.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	12	Subject	Operating Rules and Procedures Review
Date of Review	January 26, 2011	Department(s)	Rail Operations and Transportation Management
Reviewers/ Inspectors	Donald Filippi	Person(s) Contacted	Garry Stanislaw (Light Rail Transportation Superintendent) John Steck (Light Rail Technical Training Supervisor)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2 Rule m 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 12 3. Standard Operating Procedures Manual 4. Light Rail Operating Rulebook, Dated June 1, 2009 5. Train Operator Ride Check Report 6. Safety, Procedures, and Rules Adherence Testing (SPRAT), Dated January 7, 2009 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Operating Rules and Procedures Review</p> <p>Interview VTA's representative(s) responsible for Operation Rules and Procedures and review records and documentation for the last three years to determine whether or not:</p> <ol style="list-style-type: none"> 1. Revisions or changes to the Standard Operating Procedures Manual and Light Rail Operating Rulebook are performed systematically and distributed to the relevant personnel. 2. Bulletins, Train Orders, Superintendant Notices are issued in a timely manner and provided to train operators as necessary with adequate information for them to carry out their responsibilities safely and securely. 3. Any unusual occurrence reports or call out regarding operations violations are reviewed if required and addressed with the appropriate departments. 4. Bulletins and operating rules have been distributed to staff during the past 12 months and the process has been tracked. 5. Randomly review ride check reports for at least five train operators and determine if at least three ride checks per year were performed for the same operator. 6. Review SPRAT testing for at least five train operators 7. Any discrepancies and corrective actions were mitigated and tracked in a timely manner until completion for bullets 3, 5, and 6 			
RESULTS/COMMENTS			
<u>Activities:</u>			

1. Staff reviewed the process in which the Standard Operating Procedures Manual and Light Rail Operating Rulebook are revised. Staff found that SCVTA has a process that allows personnel to discuss and debate revisions in an organized forum, as well as a systematic procedure for all changes to be documented and approved.
2. Staff reviewed all applicable documents to Rail Operations and how those documents are issued to Operating personnel. Staff found that all of the documentation was issued to the proper employees and retained in an organized manner. All of the SCVTA personnel that were approached by Staff were able to produce the most recent documents and had knowledge of their content.
3. Staff reviewed the Unusual Occurrence Reports and found them to be in order. Staff also found that any incident that needed immediate action was processed according to SCVTA policy.
4. Staff reviewed Bulletins and Operating rules and found that all changes were documented; all material that was re-issued was done according to SCVTA policies and procedures.
5. Staff reviewed the ride check data from SCVTA and found that the Training Personnel had exceeded SCVTA requirements and their documentation process should be noted as an industry Best Practice.
6. Staff reviewed the efficiency testing records and found them to be as well tracked as the ride checks, the Training Departments standards not only exceed SCVTA's requirements, and they exceed industry standards.
7. Staff reviewed SCVTA Corrective Action Process pertaining to operations and found that all items were tracked and mitigated in the required period.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	13	Subject	Hours of Service
Date of Review	January 24, 2011	Department(s)	Rail Operations
Reviewers/ Inspectors	Erik Juul	Person(s) Contacted	Garry Stanislaw (Light Rail Transportation Superintendent) John Carlson (OCC Superintendant) Janice Broock (Light Rail Assistant Transportation Superintendent)

REFERENCE CRITERIA

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

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hours of Service

Randomly select a minimum of two employees from each of the following safety sensitive job classifications:

- Train Operators
- Rail Transit Operations Supervisors
- Signal Maintenance personnel
- Power and Support Controllers
- Rail Fleet Services Personnel

Review the payroll records, "time on duty" records, and/or other pertinent documentation for a three month period in the past two years to determine whether or not selected employees exceeded the "hours of service" limitations set in the reference criteria.

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA representatives to determine whether or not selected employees exceeded the "hours of service" limitations set in the reference criteria. Staff reviewed hours of service records for:

- Train Operators, Employee IDs 12018 and 10077
- Transportation Supervisors, Employee IDs 3241 and 2858
- Signal Maintenance Maintainers, Employee IDs 10701 and 11250
- Power and Support Controllers, Employee IDs 10790 and 3298
- Rail Fleet Services Personnel, Employee IDs 8014 and 5170

Review Results:

All of the selected employees were in compliance within the “hours of service” limitations set in the reference criteria.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	14	Subject	Bridges/Aerial Structures
Date of Review	January 28, 2011	Department(s)	Maintenance Engineering
Reviewers/ Inspectors	Arun Mehta	Person(s) Contacted	Art Douwes (Operations Manager, Engineering) Manjit Singh Khalsa (Sr. Systems Engineer) Kris Sabherwal (Associate Systems Engineer)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 5 & 10 3. Bridge and Structures Inspection Procedures, Dated June 2008 4. National Bridge Inspection Standards (NBIS) 5. CPUC 2007 VTA Triennial Safety Audit, Recommendation 12 (Checklist 25) 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Bridges/Aerial Inspections and Reports</p> <p>Interview VTA representative(s) to determine whether or not:</p> <ol style="list-style-type: none"> 1. The structures inspection program meets the requirements of the reference criteria 2. The Standard Operating Procedures for structural inspection is reviewed and revised as necessary to effectively address the conditions in the system <p>Review the available inspection reports for the past three years and any other pertinent documents to determine whether or not:</p> <ol style="list-style-type: none"> 1. The frequency of inspections is met as required in the structures inspection schedule 2. Any findings or discrepancies are reported and directed to the appropriate responsible persons and mitigated in a timely manner. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff interviewed VTA personnel responsible for maintenance of bridges and structures. Staff also reviewed the applicable Standard Operating Procedure (SOP) and inspection records.</p> <p><u>Review Results:</u></p> <ol style="list-style-type: none"> 1. Staff reviewed the list of 82 bridges and aerial structures VTA maintains. Each structure has an identification number a structure number, name/type and location, and a TES Pole No 			

2. As part of the corrective action resulting from a recommendation during the 2007 Triennial Audit, VTA developed a Standard Operating Procedure (SOP) # MTN-PR-7101 titled "Bridges and Structures Inspection" dated June 4, 2008. The SOP describes the procedures used for inspection and maintenance of structures and the responsibilities of VTA staff and contractors.
3. A Bridge and Structures Management System (BMS) program was developed in 2007 by Nolte & Associates for VTA using the National Bridge Inspection Standards (NBIS).
4. VTA had its contractor, Nolte & Associates do structural inspection of all the 82 structures starting in 2009 and ending in 2010. All the inspection records are recorded in the BMS database and were reproduced in a hard copy binder and made available to staff for review. The new biennial inspections will start in fall, 2011.
5. Staff reviewed the records for three structures.
 - Structure # 42 (St. Tomas Aquino Creek Bridge) had a "poor" rating of 4 out of a rating scale of 0 to 9 -- 0 being the worst "failed condition" requiring immediate closure of services and 9 being "excellent" requiring no action. Structure # 42 had a lot of efflorescence and cracks with potential for water leakage. It also needed painting.
 - Structure # 78 (Great Mall-Aerial Station) had a "satisfactory" rating of 6 out of 10; it also needed painting and had some efflorescence issues;
 - Structure # 17 (Hillsdale Ave Bridge) also had a "satisfactory" rating of 6 out of 10; it had only some minor issues not requiring any immediate attention.
6. VTA Bridge maintenance staff applied for a capital funding appropriation of ~ \$1.5 Million for structural maintenance efforts as part of New Project # "P-New 9". Some of the painting activities will be initiated in early 2011 by the contractor who does painting work at VTA stations.
7. No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	15	Subject	Traction Power Inspection
Date of Review	January 25, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Steve Espinal	Person(s) Contacted	Phil Sharp (WP&S Superintendant)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. General Order 95 - Rules for Overhead Electric Line Construction
3. General Oder 143-B, Section 10 - Traction Power Requirements and Section 14.06 - Traction Power System Inspections and Records
4. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
5. MTN-PR-6150 - Inspection of Overhead Catenary System, Dated December 5, 2005
6. MTN-PR-6151 – Inspection of Way, Power and Signal Substations, Dated December 5, 2005
7. CPUC 2007 VTA Triennial Safety Audit, Recommendation 3 (Checklist 4)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Traction Power Inspection

1. Review and evaluate the compliance of VTA's Overhead Catenary System (OCS) Maintenance programs and standards.
2. Observe and/or perform detailed inspections of the components including but not limited to the following to determine whether or not VTA is in compliance with the applicable reference criteria.

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA representative in-charge of the Traction Power Inspection.

OCS Audit and Inspection

The Overhead Catenary System inspection focused on the SCVTA monthly, semi-annual and annual inspection and maintenance program. The following inspection forms were reviewed for the months of January-March of 2008, 2009 and 2010. The forms reviewed are shown below:

MTN-FR-6150A Monthly Overhead Catenary System Inspection
 MTN-FR-6150H Annual Overhead Catenary System Inspection
 MTN-FR-6150F Semi-Annual Shop Disconnect Switch Inspection

Field inspection included Guadalupe and Vasona lines. The Guadalupe line was inspected by walking the line. The Vasona line was inspected while riding the LRV and conducting the inspection viewing the OCS

system from the rear of the last car. SCVTA conducts the inspection of the Vasona line from the back of a LRV as well.

Findings:

Small tree growth was seen touching the Overhead Catenary System on the Guadalupe line by Guadalupe Park on San Carlos Street. VTA staff trimmed the small tree growth that was touching the OCS at Guadalupe Park on San Carlos after the inspection and updated CPUC representative about the after action taken.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	16	Subject	Right of Way Inspection (Fencing, Warning Signs, Barrier, Vegetation)
Date of Review	January 26, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Jimmy Xia	Person(s) Contacted	Joel Milburn (Passenger Facilities Maintenance Supervisor) Nick Gonzalez (Track Supervisor) Dean Palmquist (Technical Trainer)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. General Order 143-B, Section 9.03 – Installation of Curbs, Fences, and Barriers; Section 9.10 – Right-Of-Way Signs; Section 9.12 – Clearing Vegetation
3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
4. MTN-PR-6403 – Wayside (Track and Right-of-Way) Inspections, Dated December 5, 2005
5. MTN-PR-6404 - WPS Wayside (Track and Right-of-Way) Maintenance, Dated December 5, 2005
6. MTN-PR-6419 – WPS Inspection and Maintenance of Right-of-Way Fencing, Dated December 5, 2005
7. MTN-PR-6301 - WPS Daily Station Maintenance, Dated December 5, 2005
8. CPUC 2007 VTA Triennial Safety Audit, Recommendation 6 (Checklist 8)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Right of Way Inspection (Fencing, Warning Signs, Structures, Vegetation)

1. Conduct operational observations by riding trains on the Vasona, Tasman East/West, Guadalupe, etc, Lines and randomly select at least three stations to visually inspect the right-of-way and determine whether or not:
 - a. The requirements of Section 9.10 and 9.12 of GO 143-B have been met.
 - b. Fences are such that they offer adequate degree of security to the right-of-way from any possible intrusions

RESULTS/COMMENTS

Activities:

Staff conducted visual inspections of the Right-Of-Way (ROW) and ROW fencing by riding trains along the Tasman West, Tasman East, Guadalupe, and Vasona Lines and visual inspections at the Downtown Mountain View, Alum Rock, Santa Teresa, and Winchester stations.

Review Results:

The findings from the visual inspections of the ROWs along the Tasman West, Tasman East, Guadalupe, and Vasona Lines are as follows.

The Tasman West Line:

1. The ROW appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The ROW appeared to be cleared of all vegetation that would obstruct Train Operators' visibility, interfere with employees in performing normal trackside duties, and obstruct emergency walkways.

The Tasman East Line:

1. The ROW appeared to be well-maintained.
2. Staff observed that pedestrian warning signs were missing from the pedestrian fence between the two tracks at the McKee station. Subsequent to this inspection, per VTA's e-mail dated 2/10/11, pedestrian warning signs have been put on the pedestrian fence mentioned above.
3. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
4. The ROW appeared to be cleared of all vegetation that would obstruct Train Operators' visibility, interfere with employees in performing normal trackside duties, and obstruct emergency walkways.

The Guadalupe Line:

1. The ROW appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The ROW appeared to be cleared of all vegetation that would obstruct Train Operators' visibility, interfere with employees in performing normal trackside duties, and obstruct emergency walkways.

The Vasona Line:

1. The ROW appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The ROW appeared to be cleared of all vegetation that would obstruct Train Operators' visibility, interfere with employees in performing normal trackside duties, and obstruct emergency walkways.

The findings from the visual inspections conducted at the Downtown Mountain View, Alum Rock, Santa Teresa, and Winchester stations are as follows.

Downtown Mountain View Station:

1. The ROW fencing appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The trees/vegetation on the station appeared to be well trimmed.

Alum Rock Station:

1. The ROW fencing appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The trees/vegetation on the station appeared to be well trimmed.

Santa Teresa Station:

1. The ROW fencing appeared to be well-maintained.
2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. No vegetation problems were observed on the station platform.

Winchester Station:

1. The ROW fencing appeared to be well-maintained.

2. The ROW signs appeared to be properly installed, well-maintained, and clearly visible.
3. The trees/vegetation on the station appeared to be well trimmed.

The findings from the visual inspections of the ROW fencing along the Tasman West, Tasman East, Guadalupe, and Vasona Lines are as follows.

The Tasman West Line:

1. ROW fencing appeared to be well-maintained, and no fencing defects were observed throughout this line.

The Tasman East Line:

1. ROW fencing appeared to be well-maintained, and no fencing defects were observed throughout this line.

The Guadalupe Line:

1. ROW fencing appeared to be well-maintained. Some minor fencing defects were noted and VTA is aware and taking care of these defects and are working with others agencies to fix them.

The Vasona Line:

1. ROW fencing appeared to be well-maintained. At Bascom Light Rail Station location, VTA is replacing the existing fence with a new tall fence and this is work in progress.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	17	Subject	Track and Turnout Maintenance Review
Date of Review	January 26, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	John Madriaga	Person(s) Contacted	Nick Gonzalez (Track Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
3. MTN-PR-6403 - Wayside (Track and Right-of-Way) Inspections, Dated December 5, 2005
4. MTN-PR-6404 - WPS Wayside (Track and Right-of-Way) Maintenance, Dated December 5, 2005
5. MTN-PR-6405 - Track Geometry Standards, Dated September 15, 2000
6. MTN-PR-6406 - Inspection and Maintenance of Ballast, Dated September 15, 2000
7. MTN-PR-6407 - Inspection and Maintenance of Ties, Dated September 15, 2000
8. MTN-PR-6408 - Inspection and Maintenance of Rail, Dated September 15, 2000
9. MTN-PR-6409 - Maintenance of Fastenings, Dated September 15, 2000
10. MTN-PR-6410 - Inspection and Maintenance of Joints, Dated September 15, 2000
11. MTN-PR-6411 - Inspection and Maintenance of Continuous Welded Rail (CWR) Track, Dated September 15, 2000
12. MTN-PR-6415 - Inspection and Maintenance of Turnouts and Diamond Crossings, Dated September 15, 2000
13. MTN-PR-6416 - Inspection and Maintenance of Rail Crossings, Dated September 15, 2000
14. CPUC 2007 VTA Triennial Safety Audit, Recommendation 14 (Checklist 28)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Track and Turnout Maintenance Review

1. Review VTA's records of preventative maintenance, scheduled and unscheduled maintenance activities during the last three years for the following components:
 - a. Track Inspection
 - b. Ties
 - c. Rail Fastenings
 - d. Rail Joints
 - e. CWR track
 - f. Turnouts and Diamond Crossings
2. Randomly select at least two records inspection for each of the above components to determine whether or not:
 - a. All mainline tracks, yard leads, and transfer tracks were inspected at the correct frequency
 - b. The required inspections were properly documented and noted defects were corrected in a timely manner
3. Randomly select at least two separate recorded geometry car inspection reports to determine

whether or not:

- a. All mainline tracks, yard leads, and transfer tracks were inspected at the correct frequency
- b. The required inspections were properly documented and noted defects were corrected in a timely manner

RESULTS/COMMENTS

Activities:

Staff randomly selected and reviewed VTA's records of preventive maintenance for track inspection, ties, rail fastenings, rail joints, CWR track, turnouts and diamond crossings to determine the correct frequency and timely manner defects found were corrected.

Review Results:

1. Quarterly inspection records on switches 1120 and 1125 on Tasman Line were in compliance.
2. No exceptions were noted with the track evaluation geometry car inspection records from 2008 to 2010

Comment:

An inspection form which illustrates the type of turnout, measurements and tie condition of switches would be more descriptive, and therefore more useful, than just check marks.

Findings:

1. No records were found for quarterly inspection records between 2/20/09 and 8/21/09 for switch 1091 on Tasman Line.
2. No records were found for quarterly inspection records for 12/01/10 for switch S-1a on Guadalupe Line

Recommendations:

VTA should develop controls necessary to alert management when quarterly switch inspection records are not properly documented as required.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	18	Subject	Maintenance Training and Certification
Date of Review	January 25, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Jimmy Xia Michael Borer	Person(s) Contacted	David Acosta (Light Rail Maintenance Training Supervisor) Greg Bushner (Light Rail Maintenance Instructor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 13
3. MTN-PR-6800 – Way, Power and Signals Training Program, Dated March 23, 2001

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Maintenance Training and Certification

Interview the VTA representative(s) in charge of the Light Rail Maintenance Training Program to determine whether or not:

1. The training program standards and course implementation are reviewed and modified as necessary to meet the requirements of the reference criteria.
2. Randomly select the names of at least two persons in each of the following classifications:
 - d. Track Workers
 - e. Track Equipment Operators
 - f. Overhead Line Workers
 - g. Electro-Mechanics / Electronic Technicians
 - h. Light Rail Maintenance Foreperson
3. Review the training and certification records for the last three years to determine whether or not:
 1. The employee has received the required training to perform his/her duties
 2. Documents are on-file to show that the employee is qualified to perform his/her duties
 3. The employee has been re-certified at the required frequency

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA representatives in charge of the Light Rail Maintenance Training Program

regarding VTA's revision process of its training program standards and course implementation. In addition, staff reviewed the following documents that state the light rail maintenance training program standards and course implementation:

1. Way, Power and Signals Training Program Standard Operating Procedure (SOP) Version No. 2, dated 1/5/2011 (Document Number: MTN-PR-6800)
2. Light Rail Training and Certification Requirements SOP Version No. 2, dated 1/5/2011 (Document Number: MTN-PR-7401)

Staff randomly selected two employees from the Track Workers, Track Equipment Operators, Overhead Line Workers, Electro-Mechanics, Electronic Technicians, and Light Rail Maintenance Foreperson classifications and reviewed their training records for the previous and current certification.

Review Results::

1. VTA reviews and modifies its light rail maintenance training program standards and course implementation as necessary to meet the requirements of the reference criteria. VTA's Way, Power, and Signals Training Program SOP (document number: MTN-PR-6800) and Light Rail Training and Certification Requirements SOP (document number: MTN-PR-7401) have been revised on 1/5/11, approved, and signed off. Both of these SOPs will be implemented once VTA's Chief Operating Officer signs them in the near future. These two SOPs are reviewed and modified on an as needed basis.
2. VTA has the following training classes for its track workers and track equipment operators:
 - a. A yearly 8-hour FRA class
 - b. Twenty four 2-hour basic track lessons based on the material contained in the Basic Principles of Track Maintenance binder, few of which are provided in a year
 - c. A biennial 4-hour electrical safety class
 - d. A 3-hour traffic controls class that is administered whenever a new edition of Work Area Traffic Control Handbook manual comes out
 - e. A yearly knock at door training that is part of the Roadway Worker Protection training
 - f. A triennial forklift operation class
 - g. Monthly tailgate training
3. In addition, VTA has the optional M/W welding consultants' torch qualification training and M/W welding consultants track component welding training for the track workers. It also has the yearly 5-day tamper training class that is only for the graveyard shift track workers.
4. Some of the training topics for track maintenance as shown on the Way, Power and Signals Training Program SOP Version No. 1, dated 3/23/2001, Appendix A: Group Training Plans are covered in monthly tailgates. The training materials covered in tailgates are contained in VTA's Employee Safety Training Program Tailgate / Safety Talks binder.
5. VTA has the following training classes for its overhead line workers:
 - a. A yearly 4-hour high voltage class, which also covers the electrical safety training
 - b. A 3-hour traffic controls class as mentioned above
 - c. A triennial 8-hour confined space class
 - d. A yearly knock at door training as mentioned above
 - e. A triennial forklift operation class
6. VTA has the following training classes for its electro-mechanics, electronic technicians, and light rail maintenance forepersons:
 - a. An initial LRV preventive maintenance and troubleshooting training class
 - b. A 4-hour LRV door training class that is held on an as needed basis depending on the arrival of new technology upgrades
 - c. Annual LRV maintenance recertification training

- d. An annual high-rail recertification training class
 - e. The annual VTA basic restricted access and advanced restricted access classes
 - f. The annual VTA basic roadway worker rules and advanced roadway worker rules classes
 - g. An approximately $1\frac{1}{2}$ hours long annual Caltrain basic roadway worker rules class
 - h. A triennial forklift operation class
7. In addition, VTA has the voluntary training classes on Unimog (a high-rail vehicle) and Peterbilt (an emergency response vehicle) for its electro-mechanics that are held once a year.
 8. The minimum score on the final exam for each training class for the track workers, track equipment operators, overhead line workers, electro-mechanics, electronic technicians, and light rail maintenance forepersons to pass each training class for them is typically 75%.
 9. The training records for all twelve randomly selected employees that staff reviewed show a timely completion of the required training and certification necessary to perform their duties.
 10. Documents including test records for the required training classes for all twelve randomly selected employees with their passing scores for these classes, certificates of completion of some training classes for these employees, and training class rosters are on file to show that all twelve randomly selected employees are qualified to perform their duties.
 11. All twelve randomly selected employees have been re-certified in the training classes that they are required to take at the required frequency as mentioned in VTA's SSPP Version No. 10, dated 2/1/10, Element 13, and VTA's Way, Power, and Signals Training Program SOP (document number: MTN-PR-6800) and Light Rail Training and Certification Requirements SOP (document number: MTN-PR-7401).

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	19	Subject	Light Rail Vehicle Preventative Maintenance
Date of Review	January 24, 2011	Department(s)	Vehicle Maintenance
Reviewers/ Inspectors	Michael Borer	Person(s) Contacted	James Ersted (Equipment Superintendent)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3; Section 3.5
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
3. MTN-PR-5102 – Light Rail Vehicles with Hazardous Defects, Dated September 24, 2001
4. MTN-PR-5120 – LRV Wheel Inspections and Reprofilng, Dated October 29, 2003
5. MTN-PR-5139 – A-PM Inspection – KI Light Rail Vehicles, Dated January 19, 2006
6. MTN-PR-5140 – B-PM Inspection – KI Light Rail Vehicles, Dated February 27, 2003
7. MTN-PR-5142 – LFLRV Major Inspection “D” Procedure, Dated September 1, 2004
8. MTN-PR-5149 – Daily Inspection – KI Light Rail Vehicles, Dated January 20, 2006
9. MTN-PR-5156 – Preventive Maintenance (PM) Scheduling for Light Rail Vehicles, Dated August 21, 2001
10. MTN-PR-5158 – Light Rail Vehicles Maintenance Work Orders, Dated September 24, 2001
11. MTN-PR-5159 – Light Rail Vehicles Placement and Status Report, Dated August 10, 2001

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Light Rail Vehicle Preventative Maintenance

Randomly select at least 10 vehicles to review the completed Preventative Maintenance (PM) records over for the last two years to determine whether or not:

1. The vehicles were inspected during preventative maintenance at the required frequencies as specified in the referenced criteria
2. The records were properly documented with the necessary review and approval
3. Noted defects were corrected in a timely manner

RESULTS/COMMENTS

Activities:

Staff conducted maintenance review records on January 24, 2011 at VTA in San Jose.

Review Results:

Staff inspected random sample of mechanical records that included Daily Inspections, PM's, Work Orders,

Wheel inspection and Reprofilng.

Staff reviewed Preventative maintenance records on the following KI Light Rail Vehicles:

Car# 990 for 2009 PM Minor A and 2009 PM Major B

Car# 974 for 2009 PM Minor A and 2009 PM Major C

Car# 951 for 2009 PM Minor A and 2009 PM Major B

Car# 944 for 2009 PM Minor A and 2009 PM Major B

Car# 938 for 2009 PM Minor A and 2009 PM Major B

Car# 911 for 2009 PM Minor A and 2010 PM Major E

Car# 923 for 2010 PM Minor A and 2010 PM Major B

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	20	Subject	Non Revenue Vehicle Maintenance
Date of Review	January 26, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Michael Borer	Person(s) Contacted	Paul Russo (Electro Mechanics)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
3. MTN-PR-5151 – Unimog and Other High-Rail Vehicle Mainline Operation Procedure, Dated September 24, 2001
4. MTN-PR-6418 – On Track Use of Equipment, Dated September 15, 2000

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Non Revenue Vehicle Maintenance

Randomly select a minimum of three high rail maintenance vehicles from the Guadalupe Division 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:

1. The vehicles were inspected during preventative maintenance at the required frequencies as specified in the referenced criteria.
2. The records were properly documented with the necessary review and approval.
3. Noted defects were corrected in a timely manner.
4. Any necessary adjustments or modifications to the rail system are tracked and monitored for performance and safety

RESULTS/COMMENTS

Activities:

Staff conducted equipment inspections and maintenance records review on January 24, 2011 at VTA.

Review Results:

Staff inspected random sample of Non Revenue Vehicle Maintenance records that included Daily Inspections and Mileage Mandated Inspections. VTA personal worked very well with staff, when staff requested maintenance records they were presented promptly.

Staff conducted inspections on the following Non Revenue Vehicle Maintenance:

Vehicle # 29245 - No Defects

Vehicle # 29240 - No Defects

Vehicle # 29278 - No Defects

Staff reviewed Preventative Maintenance records on the following Hi Rail:

Vehicle # 29245

Vehicle # 29240

Vehicle # 29278

The records were well maintained and easily accessible to staff.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	21	Subject	Traction Power Substation Maintenance Review
Date of Review	January 27, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Steve Espinal Rupa Shitole	Person(s) Contacted	Phil Sharp (WP&S Superintendant)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. General Order 143-B: Section 14.06 – Traction Power System Inspections and Records
3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
4. MTN-PR-6151 – Inspection of Way, Power, and Signal Substations, Dated December 5, 2005
5. CPUC 2007 VTA Triennial Safety Audit, Recommendation 4 (Checklist 6)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Traction Power Substation Maintenance Review

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

- a. All required inspections were performed at the correct frequency as specified in the reference criteria
- b. The required inspections were properly documented and noted defects were corrected in a timely manner
- c. Noted defects are tracked and signed off upon completion by the designated representative

RESULTS/COMMENTS

Activities:

Staff reviewed the Substation inspection and maintenance records for January through March of 2008, 2009 and 2010. Staff reviewed the following inspection forms:

MTN-FR-6151A Weekly Inspection of Way Power & Signal Substations
 MTN-FR-6151B Quarterly Inspection of Way Power & Signal Substations
 MTN-FR-6151C Semi-Annual Inspection of Way & Signal Substations
 MTN-FR-6151D Annual Inspection of Way & Signal Substation

Staff reviewed work orders on various substations for work completion. Substation 1, 3, 4, 14 & 22 were inspected and all repairs were completed. However, substation 1 showed the alarm system was not repaired. But SCVTA was aware of the problem and parts were on order.

Findings:

1. In 2010, Substation 13 first quarterly inspection was deferred according to inspection form MTN-FR-6151B.
2. MTN-PR-6151 requires a weekly inspection of all substations. The following substations were not completed as required for January, February and March of 2010.

<u>Substation</u>	<u>Scheduled Inspection date missed</u>
4	2/15/10
15	3/1/10
19	2/15/10,
22	1/4/10, 2/15/10,
23	1/4/10,
24	1/4/10
25	2/15/10
28	3/15/10
29	1/11/10, 1/18/10, 2/1/10
30	1/18/10
31	1/25/10
32	1/11/10

3. During field inspection, substations 1, 3, 4 and 14 all had an approximate 9"x 30" hole in the floor below the newly installed SCADA system.

Recommendations:

VTA should conduct weekly substation inspections and quarterly inspections on all substations as directed by maintenance procedure 6151. Also, VTA should repair the approximate 9" x 30" hole in the floor in all substations below the newly installed SCADA system.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	22	Subject	Right of Way Maintenance Review
Date of Review	January 27, 2011	Department(s)	Way, Power, and Signals
Reviewers/ Inspectors	Jimmy Xia	Person(s) Contacted	Joel Milburn (Passenger Facilities Maintenance Supervisor) Nick Gonzalez (Track Supervisor) Tom Hardesty (Signal Maintenance Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. General Order 143-B, Section 9.03 – Installation of Curbs, Fences, and Barriers; Section 9.10 – Right-of-Way Signs; Section 9.12 – Clearing Vegetation
3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
4. MTN-PR-6403 – Wayside (Track and Right-of-Way) Inspections, Dated December 5, 2005
5. MTN-PR-6404 - WPS Wayside (Track and Right-of-Way) Maintenance, Dated December 5, 2005
6. MTN-PR-6419 – WPS Inspection and Maintenance of Right-of-Way Fencing, Dated December 5, 2005
7. MTN-PR-6301 - WPS Daily Station Maintenance, Dated December 5, 2005
8. CPUC 2007 VTA Triennial Safety Audit, Recommendation 6 (Checklist 8)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Right of Way Maintenance Review

Review VTA's records of preventative maintenance, scheduled and unscheduled maintenance activities for two separate periods during the last three years for the following components:

1. Fencing - Randomly select at least two separate recorded right of way inspection areas to determine whether or not:
 - a. Segments of fencing were inspected at the correct frequency
 - b. The required inspections were properly documented and noted defects were corrected in a timely manner
2. Right-Of-Way Signs - Randomly select at least two separate recorded right of way inspection areas to determine whether or not:
 - a. All right-of-way warning signs were inspected at the correct frequency
 - b. The required inspections were properly documented and noted defects were corrected in a timely manner
3. Vegetation - Randomly select at least four separate recorded right of way inspection areas to determine whether or not:
 - a. Sites containing vegetation were inspected at the correct frequency

- b. The required inspections were properly documented and noted discrepancies were corrected in a timely manner
 - c. A plan has been implemented to mitigate and control the growth of vegetation throughout the system
- 4. Station Maintenance - Randomly select at least three separate recorded station maintenance inspections to determine whether or not:
 - a. Inspections were conducted at the correct frequency
 - b. The required inspections were properly documented and noted defects were corrected in a timely manner

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA personnel and selected and reviewed the following records of preventative maintenance (PM) and scheduled and unscheduled maintenance activities that were completed in the last three years for the following.

1. The VTA's quarterly walking track inspection reports (Document #: MTN-FR-6403T), which VTA also uses to document defects found from walking inspections of the fencing, right-of-way signs, vegetation, and debris in addition to track components, for the following quarters dated the following (X means times by):
 - a. 4th Quarter 2009: 9/14/09
 - b. 1st Quarter 2010: 3/17/10 X 2, 3/18/10, 3/19/10 X 2, 3/22 – 3/25/10
 - c. 2nd Quarter 2010: 5/23/10, 5/26/10 X 2
 - d. 3rd Quarter 2010: 7/12/10 X 2, 7/13/10, 7/14/10 X 2, 7/15/10 X 2, 9/20 – 9/23/10
 - e. 4th Quarter 2010: 10/21/10, 10/25 – 10/28/10, 11/29 & 11/30/10, 12/1/10 X 2, 12/2/10, 12/3/10 X 3, 12/10/10
2. The VTA's weekly cab ride inspection reports, which VTA also uses to document defects found from cab ride inspections of the fencing, right-of-way signs, vegetation, and debris in addition to track components, that were completed in the following months dated the following (X means times by):
 - a. July 2010: 7/12/10 X 2, 7/13/10
 - b. August 2010: 8/26/10
 - c. September 2010: 9/10/10 X 2
 - d. October 2010: 10/1/10 X 2, 10/8/10, 10/15/10 X 3, 10/22/10 X 2, 10/25/10, 10/29/10 X 2
 - e. November 2010: 11/12/10 X 5, 11/26/10 X 2
 - f. December 2010: 12/3/10 X 5, 12/10/10 X 2, 12/16/10
3. Right-of-Way Signs
 - a. Middlefield Rd. Crossing (CPUC Crossing #: 82B-12.40)
 - i. VTA's Grade Crossing Inspection Forms for each month from July to December 2009 and from July to December 2010
 - b. Moffett Park East & West Pedestrian Crossings (CPUC Crossing #'s: 82B-10.60-D & 82B-10.66-D)
 - i. VTA's Grade Crossing Inspection Forms for each month from July to December 2009 and from July to December 2010
4. Vegetation and Station Maintenance
 - a. Daily Work Completed Reports for all the eleven stations from the Baypointe station to the Alum Rock station, dated from 7/1/09 to 7/31/09
 - b. Daily Work Completed Reports for all the eleven stations from the Champion station to the Ayer station, dated from 10/1/10 to 10/31/10, from 11/1/10 to 11/30/10, and from 12/1/10 to 12/31/10, respectively
 - c. Quarterly Station ROW Weed Abatement work order summary for 1/1/10 thru 9/30/10
 - d. Right of Way Weed Eradication, Vegetation Control & Trash Removal work orders for ROW vegetation removal activities dated the following at the following areas:

- i. 12/24/10 – zone 4 from Blossom Hill to switch 84A
 - ii. 12/29/10 – zone 4 around Blossom Hill Rd and River Blossom St
 - iii. 12/30/10 – zone 4 from Blossom Hill Rd to substation #11
- e. The monthly ROW weed/vegetation/trash removal activities history reports for November 2010, December 2010, and most of January 2011

Review Results:

- 1. Fencing
 - a. Segments of fencing were inspected at the correct frequency and the required inspections were properly documented.
 - b. All the other noted defects were corrected in a timely manner.
- 2. Right-of-Way (ROW) Signs
 - a. Middlefield Rd. Crossing (CPUC Crossing #: 82B-12.40)
 - i. The grade crossing signs were inspected at the correct monthly frequency in accordance with VTA's Grade Crossing Warning System Inspection and Preventive Maintenance procedure (Document #: MTN-PR-6205) Version No. 2, dated September 5, 2008.
 - ii. The required inspections were properly documented on VTA's Grade Crossing Inspection Forms. No discrepancies were found and noted defects were corrected in a timely manner.
 - b. Moffett Park East & West Pedestrian Crossings (CPUC Crossing #'s: 82B-10.60-D & 82B-10.66-D)
 - i. The grade crossing signs were inspected at the correct monthly frequency.
 - ii. The required inspections were properly documented on VTA's Grade Crossing Inspection Forms. No discrepancies were found and noted defects were corrected in a timely manner.
 - c. Inspections for fencing, ROW signs (i.e. non-crossing signs), and vegetation are done during the VTA's quarterly walking track inspections and weekly cab ride inspections.
- 3. Vegetation / Debris
 - a. VTA corrects deficiencies according to a priority rating system ranging from 1 being safety critical and requiring immediate repair to 3 being minor, which will be scheduled for repair during routine preventive maintenance activities.
 - b. Sites containing vegetation were inspected at the correct frequency and the required inspections were properly documented.
 - c. All the other noted discrepancies found during inspections of the sites containing vegetation were corrected in a timely manner.
- 4. Station Maintenance
 - a. VTA's station maintenance personnel perform preventive maintenance tasks for each station and the vegetation on and around each station during the daily station maintenance activities.
 - b. Inspections were conducted at the correct daily frequency.
 - c. The required inspections were properly documented on VTA's Daily Work Completed Report forms, and the noted defects were corrected in a timely manner.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	23	Subject	Drug and Alcohol Policy/Program
Date of Review	January 26, 2011	Department(s)	Administrative Services
Reviewers/ Inspectors	Erik Juul	Person(s) Contacted	Jackie Adams (Administrative Staff) Garry Stanislaw (Light Rail Transportation Superintendant)

REFERENCE CRITERIA

1. Code of Federal Regulations CFR 49, Parts 40 and 655,
2. General Order 164-D: Section 3.2 Rules t
3. General Order 143-B, Section 12.03 – Use of Alcohol, Narcotics, or Drugs Forbidden
4. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 21
5. VTA's Substance Abuse Control Program: Drug and Alcohol Policy for Safety Sensitive Employees with Memorandum Dated September 2, 2010
6. CPUC 2007 VTA Triennial Safety Audit, Recommendation 10 (Checklist 21)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Drug and Alcohol Policy/Program

Interview the VTA representative and review appropriate records in the last three years to determine whether or not:

1. The VTA Substance Abuse Program meets current FTA guidelines
2. Results from the FTA Audit are satisfactory with any discrepancies having been addressed and corrective actions put in place to track until completion
3. The VTA Substance Abuse Program includes contracted employees who also work in safety sensitive positions
4. The employees in safety sensitive positions were tested during the past three years for the following tests:
 - a. Pre-employment
 - b. Reasonable suspicion
 - c. Post-Accident
 - d. Random
 - e. Return to Work
 - f. Follow-up
5. The outcome of the tests is in compliance with VTA's policy and other regulatory requirements

Randomly select at least ten VTA employees in safety sensitive positions who were tested positive for either drugs or alcohol or refused to be tested during the last three years and determine whether or not:

1. The employee was evaluated and released to duty by a Substance Abuse Professional (SAP)

2. The employee was administered a return to duty test with verified negative results
3. Follow-up testing was performed as directed by the SAP according to the required follow-up testing frequencies of the reference criteria after the employee has returned to duty
4. Consequences for repeat offenders were carried out as required by the reference criteria
5. Random testing of safety sensitive employees is performed as detailed in the VTA's Substance Abuse Control Program

Randomly select three employees from two different safety sensitive classifications and review records to determine whether or not:

1. VTA employees in safety sensitive positions are given physicals including sight exams with results meeting the minimal requirements

RESULTS/COMMENTS

Activities:

Staff interviewed the VTA representatives to determine their involvement in the VTA Drug and Alcohol Policy/Program.

Review Results:

1. The VTA Substance Abuse Program meets current FTA guidelines, specifically 49 CFR Part 40 and 49 CFR Part 655
2. The most recent FTA audit, three years ago, was a clean audit (no findings).
3. Two contracted companies work on the rail side of operations. These companies do their own testing. VTA oversees testing including policy, testing, staff training, and records retention.
4. CPUC staff reviewed records for:
 - a) Pre Employment, drug only, not alcohol. Approximately 20 people per year.
 - b) Reasonable suspicion. 1 employee in 3 years.
 - c) Post accident. 50 employees in 3 years.
 - d) Random. 115 employees in 3 years.
 - e) Return to work. 2 people in 3 years.
 - f) Follow-up. 5 people in 3 years.
5. The outcome of the tests is in compliance with VTA's policy and other regulatory requirements.

Staff could not select ten VTA employees in safety sensitive positions who were tested positive for either drugs or alcohol or refused to be tested during the last three years because fortunately only two employees fit the categories.

First individual – positive test

1. Employee was evaluated and released to duty by a Substance Abuse Professional.
2. Employee was administered a return to duty test with verified negative results.
3. Follow-up testing was performed as directed by the SAP according to the required follow-up testing frequencies of the reference criteria after the employee has returned to duty: 8 tests for each of the first 3 years, 7 tests for years 4 and 5, then negative return-to-duty test.
4. Not a repeat offender.
5. Random testing is performed.

Second individual – self referral

1. Selected employees was evaluated and released to duty by a Substance Abuse Professional.
2. Employee was administered a return to duty test with verified negative results.
3. Follow-up testing was performed as directed by the SAP according to the required follow-up testing frequencies of the reference criteria after the employee has returned to duty: 7 tests for each of the first 3 years, 5 tests for years 4 and 5, then negative return-to-duty test.
4. Not a repeat offender.
5. Random testing is performed.

Also, staff selected the following three employees from two different safety sensitive classifications:

Employee #5150 Light Rail Train Operator is current with respect to Physicals including sight exams.

Employee #2804 Light Rail Train Operator is current with respect to Physicals including sight exams.

Employee #3374 OCC Rail Control Supervisor is current with respect to Physicals including sight exams.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	24	Subject	Configuration Management and System Modification
Date of Review	January 28, 2011	Department(s)	Records Management, Rail Design & Construction, Maintenance Engineering, and Risk Management
Reviewers/ Inspectors	Rupa Shitole	Person(s) Contacted	Arthur Douwes (Operations Manager, Engineering) Manjit Singh Khalsa (Senior Systems Engineer) Adolf Daaboul (Senior Transportation Engineer)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2, Rule g 2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 15 & 18 3. Light Rail Transit Design Criteria Manual 4. VTA Light Rail Safety Certification Plan 5. MTN-PR-1001 – Light Rail Configuration Management Program, Dated October 5, 2004 6. EY000913 – Procedure for completing record drawings 7. Safety and Security Certification Document No. EC-CO-WI-0006 8. Procedure for archiving of Rail System Safety Review Board Documentation 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Configuration Management and System Modification</p> <p>Interview VTA staff and review appropriate records to determine whether or not:</p> <ol style="list-style-type: none"> 1. VTA has a documented system modification review and approval process which specifies sign-off requirements and exception capability. 2. The review and approval process of proposed changes to VTA's system was properly documented (examples: Stations Retrofits, Express Train, Left hand Turn & Track Intrusion Project, etc.). 3. Configuration changes to the rail system including those which are not in the Safety Certification Process with CPUC (e.g. revenue vehicles, passenger stations & facilities) were submitted, reviewed, and approved, implemented and documented in accordance with the reference criteria. 4. VTA is actively addressing all the safety related issues stemming from the proposed changes to the system. 			
RESULTS/COMMENTS			
Activities:			

1. Staff interviewed VTA representatives who are in charge of the Configuration Management and System Modification. VTA had a list of projects that were completed during the last three years and these were documented through either Service Information Bulletins (SIB) and/or Service Change Bulletins (SCB). VTA's Configuration Review Board (CRB) meets on an as needed basis to review major safety configuration changes to the system. Since the last three years, the activation of the CRB was not required due to no major safety related projects instead all the projects were submitted, tracked and approved by the Rail System Safety Review Board (RSSRB). The Records Management Department maintains the records and is responsible for posting all the project changes to the VTA's System Online Support (SOS). The following SCB documents were reviewed:
 - a) Cab Door Lock Modification signed and dated February 25, 2008.
 - b) Installation of Safety Pin in the Emergency Cab Window signed and dated July 8, 2010.
 - c) Installation of Speed Restriction Signs on TES Poles near Vista Montana and Guadalupe River Bridge signed and dated December 22, 2010.
2. VTA is actively addressing all safety related issues stemming from the proposed changes to the system. For example, Left Hand Turn Project Phase I was completed in 2009 and VTA have an on going process of tracking the trends after making modifications.

Review Results:

1. Staff found VTA's Configuration Management and System Modification Program to be in order.
2. Staff did not note any deficiencies.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	25	Subject	Employee and Contractor Safety - Injury and Illness Prevention Program
Date of Review	January 24, 2011	Department(s)	Risk Management
Reviewers/ Inspectors	Colleen Sullivan	Person(s) Contacted	Walter Marchetti (Environmental Health and Safety Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules r
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Elements 19 & 22
3. Occupational Injury and Illness Prevention Program, Dated July 2007
4. Employee Safety Training Program Records
5. Roadway Worker Protection Program
6. Safety or Health Hazard Report Form (FRS-RM-0201)
7. Contract Documents
8. CPUC 2007 VTA Triennial Safety Audit, Recommendation 8 (Checklist 10)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Employee Safety - Injury and Illness Prevention Program

Interview the VTA representative in charge of the Employee and Contractor Safety Program to determine whether or not:

1. An appropriate procedure and reporting form is available for employees and contractors to effectively report safety hazards in the work place
2. Employees and Contractors are aware of this program and are comfortable utilizing it
3. Appropriate corrective action plans and schedule are developed and tracked to completion to address all reported hazards
4. Safety Committee meetings have addressed safety issues which have been closed out in a timely manner
5. Procedures and practices clearly identify, for the contractors and VTA managers, that VTA is in charge and that its contractors and their employees must comply with all established safety rules and procedures
6. Procedures require audits and inspections of the construction sites to monitor compliance with all established safety requirements.

Randomly select at least two employees from each of the following departments:

- a. WP&S: Way and Facilities
- b. WP&S: Systems Maintenance
- c. WP&S: Power and Mechanical Maintenance
- d. Risk Management

e. Rolling Stock and Shops

Review employee safety program records to determine whether or not each employee has received the appropriate safety training in respect to their classification

RESULTS/COMMENTS

Activities:

Staff interviewed VTA's Environmental Health and Safety Supervisor who reviewed VTA's Occupational Injury and Illness Prevention Program (IIPP). Staff verified that there is an appropriate procedure and reporting form available for employees and contractors to effectively report safety hazards in the work place. Staff verified that employees and contractors are aware of this program and are comfortable utilizing it. Also, staff verified that VTA has appropriate corrective action plans and schedules developed. These are tracked to completion to address all safety hazards reported to VTA. In addition, VTA's Risk Management Environmental, Health, and Safety committee address safety issues and close these out in a timely manner. Staff also verified that procedures and practices clearly identify, for both the contractors and VTA managers, that VTA is in charge and that its contractors and their employees must comply with all established safety rules and procedures. Staff also found that VTA's procedures require audits and inspections of the construction sites to monitor compliance with all established safety requirements.

Staff randomly selected at least two employees from each of the following departments: Way and Facilities; Systems Maintenance; Power and Mechanical Maintenance; Risk Management; Rolling Stock and Shops. Staff reviewed these employees' safety program records to determine whether or not each employee had received the appropriate safety training in respect to their classification.

1. VTA's Occupational Injury and Illness Prevention Program (IIPP) guidebook is edited every 12-16 months and is prepared by VTA's Risk Management Environmental, Health, and Safety committee. This committee meets on a monthly basis.
2. VTA's Resident Inspectors are the eyes and ears regarding safety for a VTA contractor. These resident Inspectors act as intermediaries between the VTA project manager and the contractors at a job site.
3. VTA contractors receive roadway worker protection training.
4. VTA employees can report safety hazards either verbally or in writing.
5. Staff reviewed the recommendation from the CPUC's 2007 VTA Triennial Audit which stated that VTA should document the closure of identified deficiencies found during Maintenance Superintendent's and Monthly Safety Inspection Facilities Inspections and incorporate a sign-off section in the applicable inspection records. Staff verified that VTA has been documenting these deficiencies as recommended.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	26	Subject	Hazardous Materials Programs / Environmental Management
Date of Review	January 26, 2011	Department(s)	Risk Management and Operations
Reviewers/ Inspectors	Colleen Sullivan	Person(s) Contacted	Walter Marchetti (Environmental Health and Safety Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules s
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 20
3. Occupational Injury and Illness Prevention Program (IIPP), Dated July 2007
4. Employee Safety Training Program Records
5. Safety Procedures for Entry into Confined Spaces (FRS-RM-1801)
6. CPUC 2007 VTA Triennial Safety Audit, Recommendation 9 (Checklist 17)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Hazardous Materials Programs / Environmental Management

Interview the VTA representative and review appropriate records in the last three years to determine whether or not:

1. The hazardous material and environmental management programs comply with the Federal, State and Local regulatory requirements
2. The Hazardous Material Procedures is accessible and has been reviewed and updated accordingly
3. VTA employees who handle hazardous materials have received specific training regarding reporting requirements, inventory control storage, product release or spill, and the response and cleanup of spill incidents.
4. All emergency accessible equipment for handling hazardous materials is available and inspected routinely.
5. A program/procedure is developed and implemented for hazard reporting
6. All noted discrepancies have been addressed and corrected in a timely manner
7. Confined space entry training is documented and provided to all maintenance employees who are required to enter, work in, or serve as rescuers for others in confined spaces, and their supervisors
8. An annual review of the proper implementation and effectiveness of FRS-RM-1801 procedure is conducted and documented
9. Appropriate records are kept for confined space entry in accordance with the requirements of PRS-RM-1801

RESULTS/COMMENTS

Activities:

Staff interviewed VTA's Environmental Health and Safety Supervisor to determine if this agency's Hazardous Material Program/Environmental Management is in compliance with various Federal, State, and Local regulatory requirements. Also, staff interviewed a supervisor about VTA's Hazardous Material Procedures. In addition, staff reviewed records of VTA employees who handle hazardous materials to verify that they have been provided specific training regarding reporting requirements, inventory control storage, product release or spill, and the response and cleanup of spill incidents. Staff ascertained that all emergency accessible equipment for handling hazardous materials at VTA is available and inspected routinely. Staff reviewed any discrepancies that have been found and made sure they had been addressed and corrected in a timely manner. Staff also reviewed VTA's confined space entry training. Staff verified that this training is documented and provided to all maintenance employees who are required to enter, work in, or serve as rescuers for others in confined spaces, and their supervisors. Staff also reviewed VTA's documentation that an annual review of the proper implementation and effectiveness of FRS-RM-1801 procedure is conducted and properly documented. Finally, staff reviewed VTA's records for confined space entry in accordance with the requirements of PRS-RM-1801.

1. Staff reviewed various VTA Safety Training and Environmental Protection training tailgate topics. These are handouts provided to employees at monthly meetings. The topics include such subject matter as storm water best management practices, preventing heat stress, and back safety and proper lifting.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	27	Subject	Procurement
Date of Review	January 24 & 25, 2011	Department(s)	Contracts and Materials Management(CAMM) / Light Rail Maintenance
Reviewers/ Inspectors	Arun Mehta	Person(s) Contacted	Tom Smith (Purchasing and Materials Manager, CAMM) Sunny Drennon (Purchasing Manager, CAMM) Joe Hveem (Buyer, CAMM) George Sandoval (Operations Manager, Light Rail Maintenance) Pete Wilson (Materials Supervisor, Light Rail & WPS)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules u
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 23

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Procurement

Interview the VTA representative and review appropriate records in the last three years to determine whether or not:

1. Adequate procedures and controls are in place to preclude the introduction of defective or deficient equipment into the system
2. Safety procedures exist to mitigate safety hazards or defective or deficient equipment in the event these are introduced into the system
3. Contracts and Materials Management policies and procedures are reviewed and updated as required
4. Review at least one document related to new procured item(s)

RESULTS/COMMENTS

Activities:

Staff interviewed VTA representatives from the Contracts and Materials Management (CAMM) Department on 1/24/11 and found that they were responsible for the financial and contracting part of the procurement process and the first two elements of this checklist were the responsibility of the VTA Maintenance Division. Staff met with VTA representatives from the Maintenance Division on 1/25/11.

Review Results:

1. Light Rail Maintenance Division follows Standard Procedure # MTN-PR-8001 to ensure that defective/deficient equipment does not enter the VTA system. This procedure has been revised as of 1/5/11. Maintenance Engineering is responsible for:
 - Equipment specifications/drawings
 - First article inspection/performance evaluation
 - Final evaluation/approval/rejection/disposition
 - Notifying Quality Assurance (QA), and Purchasing
2. The Maintenance Engineering has procedures in place to mitigate safety hazards in the event defective/deficient items make their way into the VTA system. A Materials Disposition Report (MDR) is prepared immediately in such an event. If a part or an item needs to be changed for some reason, an Inventory Change Request (ICR) is prepared. The VTA representatives could not recall introduction of any defective/deficient item during the last three years which would pose a safety hazard. Mr. Pete Wilson recalled one incident where LRV windshields glass were ordered and when delivery of the item in A-frame crate was being received, VTA staff noticed the "Tip & Tell Die had turned blue indicating that the item had tipped the wrong way and could be potentially damaged. VTA refused to receive the item and sent it back to the vendor as 'defective' material,
3. The Contracts and Materials Management (Camm) department follows about 25-30 policies and procedures, which are in the process of being revised and updated this year. Two of the main policies are a) FRS-PL-010, Purchasing Agent Designation & Delegation of Authority, and FRS-PL-025, Purchase Requisitions Required.
4. Staff reviewed Purchasing and Contracting Administrative Code # 95.3 defining the powers and duties of the purchasing agent. Since VTA utilizes federal funding, Camm follows Federal Procurement Circular #4224.1F. For purchases over \$3000 using Federal funding and over \$5000 for non-federal funds, a minimum of 3 competing bids are required by VTA..
5. The Operations and Maintenance Departments provide all the technical specifications of equipment and parts needed. They also do all the testing and analysis of prototypes and newly received parts and equipments following standard procedures. These departments have policies and procedures in place to prevent introduction of defective or deficient equipment into the system.
6. The Environmental and Health Services Department deals with any potentially hazardous materials brought into the VTA system including preparation of MSDS data sheets.
7. Staff reviewed Procurement File Checklist document # IFB 09-102-P01 which is used by the Buyers in Camm Department. Staff also reviewed the Procurement File # IFB 09-102-P01 for procurement of "Light Rail No Left Turn Signals". The procurement was worth about \$200,000. Four competing bids were received and analyzed by Camm department along with requestors from The Engineering and Construction Department. The award went to the third highest bidder because the lowest two bidders did not meet the requested specifications.
8. No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	28	Subject	Quality Assurance
Date of Review	January 25, 2011	Department(s)	Quality Assurance, Light Rail Maintenance
Reviewers/ Inspectors	Arun Mehta	Person(s) Contacted	George Sandoval (Operations Manager, Light Rail Maintenance) Ray Franklin (Analyst, Quality Assurance)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules u
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 23
3. MTN-PR-7202 - Precision Measuring Equipment (PME) Calibration Program, Dated June 15, 2005
4. MTN-PR-7202 A - Calibration Program PME Audit Annual, Dated October 2, 2002
5. MTN-PR-7202 B - Calibration Program PME Random Monitor - Monthly, Dated June 15, 2005
6. MTN-PR-7202 C - Calibration Supplier Audit Checklist, Dated October 2, 2002

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Calibration of Measuring and Testing Equipment Program

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

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

RESULTS/COMMENTS

Activities:

Staff interviewed VTA management and representative in charge of the calibration of test equipment. Staff reviewed the equipment and calibration records for the year 2010.

Review Results:

1. Procedures for maintaining accurate calibration of all Precision Measuring Equipment (PME) are described in Maintenance Procedure MTN-PR-7202.

2. Tools and instruments requiring calibration are listed in Way Power and Signal (WP&S) Master List. VTA has contracted with Eagle Calibration, Gilroy, CA to perform calibration of all the PME.
3. A number of instruments were selected for review. Each instrument had an identification number and a calibration sticker identifying the date of last calibration and next calibration due date (Recall date). VTA provided a binder of all calibration records for the year 2010 for staff to review.
4. Staff reviewed the calibration records for the following instruments:
 - **Multi-Meter**
B715-1: Calibrated 9/7/10; Recall date 9/7/11
Boss-01: Calibrated 9/7/10; Recall date 9/7/11
Q0489: Failed test on 11/3/10; Red tagged for "Not to be Used"
 - **Communication Analyzer**
Q0172: Calibrated 9/7/10; Recall date 9/7/11
Q0180: Calibrated 9/7/10; Recall date 9/7/11
 - **T-Carrier Analyzer**
Q0187: Calibrated 9/7/10; Recall date 9/7/11
Q0178: Calibrated 9/21/09/10; Recall date 9/21/10 – Missed recalibration on due date.
George Sandoval immediately proceeded to red tag it as "Not to be Used" until re=calibration
 - **Torque Wrench:**
Q0229: Calibrated 9/7/10; Recall date 9/7/11
Q0231: Calibrated 9/7/10; Recall date 9/7/11
 - **Stray Current Analyzer**
Q0207: Calibrated 9/7/10; Recall date 9/7/11
 - **Current Interrupter Meter**
Q0200: Calibrated 9/7/10; Recall date 9/7/11
 - **Dial Caliper**
Q0160: Calibrated 9/7/10; Recall date 9/7/11
 - **Scope Meter**
Q179: Calibrated 9/7/10; Recall date 9/7/11
 - **Frequency Counter**
Q0152: Calibrated 9/7/10; Recall date 9/7/11
5. One T-Carrier Analyzer (Q0178) was brought to the notice of staff as being out of calibration beyond its Recall date of 9/11/10 and VTA staff immediately red tagged it as "Not to be used" pending calibration. All other instruments reviewed were under proper calibration. No exceptions were noted.

Findings:

None.

Recommendations:

None.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	29	Subject	Overhead Catenary System Records Review
Date of Review	January 26, 2011	Department(s)	Way, Power, Signals
Reviewers/ Inspectors	Steve Espinal	Person(s) Contacted	Phil Sharp (WP&S Superintendent)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. General Order 143-B, Section 14.06 - Traction Power System Inspections and Records
3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
4. MTN-PR-6150 - Inspection of Overhead Catenary System, Dated December 5, 2005
5. CPUC 2007 VTA Triennial Safety Audit, Recommendation 4 (Checklist 5)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Overhead Catenary System Inspections Records Review

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

1. OCS was inspected and adjusted at the required frequencies as specified in the reference criteria.
2. Inspections were properly documented and tracking method used to verify the timely closure of work orders when generated as a result of scheduled inspections.
3. Noted defects were corrected in a timely manner.
4. Further, a supervisor or designated person has reviewed, verified and signed the document after completion of work.

RESULTS/COMMENTS

Activities:

The Overhead Catenary System inspection focused on the SCVTA monthly, semi-annual and annual inspection and maintenance program. The following inspection forms were reviewed for months of January-March of 2008, 2009 and 2010. The forms reviewed are shown below:

MTN-FR-6150A Monthly Overhead Catenary System Inspection
 MTN-FR-6150H Annual Overhead Catenary System Inspection
 MTN-FR-6150F Semi-Annual Shop Disconnect Switch Inspection.

Findings:

In 2010, Semi-Annual Shop Disconnect Switch Inspection determined track inspection was not conducted on track 05, 06, 07, 08 and 10.

Recommendations:

VTA should conduct all Semi-Annual Shop Disconnect Switch Inspections as specified in procedure MTN-PR-6150.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY			
Checklist No.	30	Subject	Vital Relays Inspections, Maintenance and Records
Date of Review	January 26, 2011	Department(s)	Way, Power, Signals
Reviewers/ Inspectors	Thomas Govea Rupa Shitole	Person(s) Contacted	George Sandoval (Operations Manager, Light Rail Maintenance) Thomas Hardesty (Signal Supervisor) Bruce Turner (Transit Systems Safety Supervisor)
REFERENCE CRITERIA			
<ol style="list-style-type: none"> 1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3 2. General Order 143-B 3. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11 4. MTN-PR-6206 – WPS Biennial Vital Relay Testing , Dated December 5, 2005 5. CPUC 2007 VTA Triennial Safety Audit, Recommendation 7 (Checklist 9) 			
ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION			
<p>Vital Relays Inspections, Maintenance and Records</p> <ol style="list-style-type: none"> 1. Review the records of preventive maintenance, scheduled and unscheduled maintenance activities for vital relays to determine if inspections were performed at the required frequencies as specified in the reference criteria. 2. Determine if inspections were properly documented and corrected in a timely manner. 3. Determine if VTA identified and implemented the acceptable limits for voltage and amperage readings for vital relay inspection records. 			
RESULTS/COMMENTS			
<p><u>Activities:</u></p> <p>Staff interviewed VTA's personnel and selected and reviewed the following records of preventive maintenance (PM) and scheduled and unscheduled maintenance of Relays activities that were completed in the last three years.</p> <ol style="list-style-type: none"> 1. Vane Relays 2 years Scheduled Maintenance <ol style="list-style-type: none"> a) Younger Avenue Signal case b) Signal Case 49 			

- c) Signal Case 51
 - d) Signal Case 53
 - e) Signal Case 85
 - f) Almaden
 - g) Chynoweth
 - h) Lick Spur (signal Case L03)
 - i) Santa Teresa
2. Vital Relay 4 years Scheduled Maintenance
- a) All Locations

Findings:

1. Vane Relay test required the drop-away voltage must be 80% or greater of the measured value of the pick-up voltage. The drop-away voltage fell below the minimum requirement documented for the following locations.
 - a) Case 81 vane 82 ATR, 82 BTR,
 - b) Case 84 vane 82CTR
 - c) Case 87 vane 82 CTR. 89 BTR
 - d) Case 92 vane 90 BTR, 95 CTR
 - e) Case 94 vane 95 BTR
 - f) Case 96 vane 96 ATR
 - g) Case 106 vane 106 ATR

During the vane relay inspection records showed that VTA did not attain the acceptable voltage and amperage limits. In February 2011, VTA provided staff with documentation showing vane relay voltage and amperage acceptable limits have been reached.

2. Vital Relays - The Department of Transportation, Federal Railroad Administration rules governing railroad signal and train control systems, part 236.106 (MTN-PR-6206) requires field testing of each vital relays which affect the safety of train operations shall be tested at least once every four years. The 2006 Vital Relays test required for 2010, documentation was not provided due to the fact that testing of these vital relay has not been performed at this time.

The Vital Relays testing does not meet minimum requirements to be in compliance of the following Procedures, Regulations and General Orders;

- a) MTN-PR-6206 – WPS Biennial Vital Relay Testing , Dated December 5, 2005
- b) CFR 236.106, Relays Tested every four years
- c) CFR 234.247 c. Relay that fails to meet requirements must be removed from service.
- d) CFR 236.589 Relays shall not be placed in service unless within accordance to designed limits.
- e) General Order 143-B Section 14
- f) General Order 127 Section 3.15 Maintenance and Operations
- g) System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 11
- h) CPUC 2007 VTA Triennial Safety Audit, Recommendation 7 (Checklist 9)

Recommendations:

VTA should produce documentation and develop controls to make certain that all relays are maintained as required by MTN-PR-6206.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	31	Subject	Facility Safety Inspection
Date of Review	January 27, 2011	Department(s)	Way, Power, Signals
Reviewers/ Inspectors	Arun Mehta	Person(s) Contacted	George Sandoval (Operations Manager, Maintenance) Tom Hardesty (Signal Supervisor)

REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules n, o; Section 3.3
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 10
3. MTN-PR-6201 – Monthly Platform Preventative Maintenance, Dated April 6, 1999
4. CPUC 2007 VTA Triennial Safety Audit, Recommendation 13 (Checklist 27)

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Facility Safety Inspection

Randomly select at least three light rail station on the Vasona, Tasman and Guadalupe Lines and review their maintenance records to determine whether or not:

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

RESULTS/COMMENTS

Activities:

Staff interviewed VTA personnel in charge of Facilities Inspection and Preventive Maintenance (PM) at the VTA stations. Staff reviewed PM records for three stations selected at random.

Review Results:

1. VTA Way, Power, and Signal (WP&S) Department uses Standard Operating Procedure (SOP) # MTN-PR-6201 to perform PM at all their stations. This SOP has been revised on 1/5/2011 as a number of changes have been made at the stations during the last three years since the last revision on 9/30/2008 including (1) wheel chair lift are not used any more; (2) Clipper Card machines have been introduced (3) Ticket Vending Machines (TVM) have been upgraded.
2. VTA uses monthly (white forms), quarterly (blue forms) and six monthly (green forms) PM services. Items such as lighting, emergency lighting, emergency (blue) phones are considered essential safety items and are mandatorily performed every month.
3. Staff selected the following three stations to review the PM records:

- Fair Oaks (Tasman Line)
 - a. Three “monthly services” were performed in 8/10, 9/10 and 10/10.
 - b. A “quarterly service” was performed in 9/10.
 - c. A “six monthly” service was performed in 12/10
 - d. All noted defects were corrected through proper work orders.
- Fruitdale Station (Vasona Line)
 - a. Three “monthly services” were performed in 8/10, 9/10 and 10/10.
 - b. A “quarterly service” was performed in 9/10.
 - c. A “six monthly” service was performed in 12/10.
 - d. All noted defects were corrected through proper work orders
- Cottle Station (Guadalupe Line)
 - a. Only one “quarterly service” was performed in 9/10 and that too was only partially completed.
 - b. Only one “monthly service” was performed in 11/10 out of the whole year.
 - c. No “six monthly” service was performed during the year.

Findings:

Cottle station on the Guadalupe line had a monthly PM service performed in only one month (November) out of 12 months in 2010 and a partial “quarterly” service performed in September, 2010. VTA does not appear to be abiding by its SOP for regular PM services at all its stations. Similar finding/recommendation was also made during the 2007 Triennial Audit.

Recommendations:

VTA should adhere to its schedule of all Preventive Maintenance Services on a regular basis per its procedure MTN-PR-6201 for all its stations.

2011 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Checklist No.	32	Subject	Gated Crossing Maintenance Records Review
Date of Review	January 26, 2011	Department(s)	Way, Power, Signals
Reviewers/ Inspectors	Thomas Govea	Person(s) Contacted	Thomas Hardesty (Signal Supervisor)

REFERENCE CRITERIA

1. General Order 143-B
2. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 24
3. MTN-PR-6205 – Grade Crossing Warning System Inspection and Preventive Maintenance, Version No. 2, Dated September 5, 2008

ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

Gated Crossing Maintenance Records Review

Randomly select at least five gated grade crossings on each line and review the inspections and maintenance records during the last three years to determine whether or not:

1. The crossings warning devices were inspected and maintained regularly
2. Inspections were properly documented as required.
3. Noted defects were corrected and documented in a timely manner.

RESULTS/COMMENTS

Activities:

Staff interviewed VTA's personnel and selected and reviewed the following records of preventive maintenance (PM) and scheduled maintenance of Gate Crossings that were completed in the last three years for the following.

1. Vasona Line
 - a. West San Carlos 82D-3.49
 - b. Auzerais, Sunol 82D-3.75
 - c. Leigh Avenue 82D-5.06
2. Tasman Line
 - a. Central Expressway 82B-13.08
 - b. Whisman Station 82B-12.90
 - c. Pacific Avenue 82B-12.76X
 - d. Old Ironsides EL22

3. Guadalupe Line
 - a. Blossom River Way 82L-0.55
 - b. Blossom Hill Road. 82L-0.74
 - c. Santa Teresa Drive 82L-0.74
 - d. Winfield 82L-0.33

Findings:

1. The WPS Superintendent is responsible for assuring that monthly, quarterly and yearly inspection and PM of VTA grade crossing warning systems are done in accordance with VTA policies and procedures, and compliance with CPUC and FRA standards.

FRA ruling on Oct 12, 2004 states;

Accordingly, the term *once every three months* means one time during any period of three months, which means once in any period of 90 days, or once in any period starting with the date of the first test and ending on the same date three months later, whichever is longer. Because there are no three consecutive months of 31 days each, but at most just two such months in any three-month period, this interval will be no more than 92 days. If a test were performed on January 30, the next test would be due no later than April 30. If a test were performed on February 28, the next test would be due May 29 (given the few days in February, the 90-day period is actually longer than the period from February 28 through May 28).

- a. Tasman Line and Vasona Line Quarterly Testing is being performed in April, then 60 days later in June, then 120 days later September for the years of 2008, 2009, and 2010, Quarterly (3 months) testing has been performed after 60 days, then 120 days later in an effort to combine with annual required testing.
 - b. Old Ironsides EL22, no quarterly testing report was performed in between January 2009 through December 2009.
2. Cable Resistance Testing shall be performed on installed cables and at least once every 10 years to be in compliance with CFR 234.267, no records were provided for during the audit;
 - a. Guadalupe Corridor Entire Line (As of March 11, 2011, VTA provided Cable Resistance Testing report for the Guadalupe Corridor)
 - b. Tasman West Corridor dated October 11, 2001 (As of March 11, 2011, VTA provided Cable Resistance Testing report for the Tasman West Corridor and last testing was performed in 1999)

VTA failed to comply with the following Procedures and Regulations;

1. MTN-PR-6205 – Grade Crossing Warning System Inspection and Preventive Maintenance
2. CFR 234.231 – Fouling wires
3. CFR 234.233 – Rail Joints
4. CFR 234.235 – Insulated Rail Joints
5. CFR 234.271 – Track Connections
6. CFR 234.267 - Cable Resistance Testing / Crossings
7. CFR 236.108 – Cable Resistance Testing / Train Control
8. System Safety Program Plan Version No. 10, Dated February 1, 2010: Element 24
9. GO 143-B Section 14 - RTA shall provide documentations and records when requested by CPUC.

Recommendations:

VTA should develop controls to make certain that MTN-PR-6205 requirements are followed and are properly documented.