

**2010  
TRIENNIAL ON-SITE  
SAFETY REVIEW OF  
AIRTRAIN AT SAN FRANCISCO INTERNATIONAL AIRPORT**

RAIL TRANSIT SAFETY SECTION  
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CONSUMER PROTECTION AND SAFETY DIVISION  
CALIFORNIA PUBLIC UTILITIES COMMISSION  
505 VAN NESS AVENUE  
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Final Report

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2010 TRIENNIAL ON-SITE SAFETY REVIEW  
AIRTRAN AT SAN FRANCISCO INTERNATIONAL AIRPORT

ACKNOWLEDGEMENT

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## TABLE OF CONTENTS

	Page
1. EXECUTIVE SUMMARY .....	1
2. INTRODUCTION .....	2
3. BACKGROUND .....	3
AirTrain Rail System Description .....	3
AirTrain 2007 Triennial Review Recommendations Status .....	3
4. SAFETY REVIEW PROCEDURE .....	4
5. FINDINGS AND RECOMMENDATIONS.....	5
 APPENDICES	
A. Abbreviation and Acronym List .....	8
B. AirTrain 2010 Triennial Safety Review Checklist Index .....	9
C. AirTrain 2010 Triennial Safety Review Checklists .....	10

## 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 AirTrain system at the San Francisco International Airport in November 2010.

The on-site review was preceded by an opening conference with AirTrain personnel on November 8, 2010. Staff conducted the 2010 AirTrain on-site safety review from November 8 through November 10, 2010. The review focused on verifying the effective implementation of the System Safety Program Plan (SSPP).

Staff held a post-review conference with AirTrain personnel on December 6, 2010. Staff provided AirTrain personnel with a synopsis of the preliminary review findings and preliminary recommendations for corrective actions.

The review results indicate that AirTrain has a comprehensive system safety program and has effectively implemented its SSPP. Staff noted no exceptions during the review and therefore made no recommendations.

The Introduction and Background Sections of this report are presented in Sections 2 and 3 respectively. The Background Section contains a description of the AirTrain system and a status of the corrective actions resulting from the 2007 on-site safety review recommendations. Section 4 describes the review procedure. The review findings and recommendations are listed in Section 5. The 2010 AirTrain Triennial Safety Review Acronyms List is found in Appendix A, Checklist Index in Appendix B, and Review Checklists in Appendix C.

## 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 AirTrain in August 2007.

Staff advised AirTrain Manager by a letter dated September 23, 2010 of the scheduling of the Commission's safety review on November 8-10, 2010. The letter included 13 checklists that served as the basis for the review. Three of the 13 checklists outlined inspection of signals, electric power systems, and vehicles. The remaining 10 checklists focused on the verification of the effective implementation of the SSPP.

Staff conducted an opening conference on November 8, 2010 with the Manager and the Safety and Security Manager for AirTrain, Bombardier Site Director, and Bombardier managers and supervisors.

Staff conducted the on-site safety inspections and records review during November 8-10, 2010. At the conclusion of each review activity, staff provided AirTrain personnel a verbal summary of the preliminary findings and discussed potential recommendations for corrective actions.

On December 6, 2010, staff conducted a post-review exit meeting with AirTrain's managers. Staff provided the attendees a synopsis of the results from the 13 checklists which required no further actions.

### 3. BACKGROUND

AirTrain at the San Francisco International Airport began operation on February 24, 2003 as a six mile system. It operates 24 hours every day, providing free service throughout the San Francisco International Airport (SFO). The SFO AirTrain was originally contracted to Bombardier as a design-build-operate-maintain project. The system is owned by the San Francisco Airport Commission and currently operated and maintained by Bombardier.

With a fleet of 38 CX-100 people movers, the six mile system serves nine stations connecting all the airport's terminals, parking garages, and the Bay Area Rapid Transit (BART) station with the Rental Car Center.

The AirTrain system operates two lines. These are:

- Blue Line – all terminals, garages, BART Station, and Rental Car Center
- Red Line – all terminals, garages, and the BART Station.

#### **Status of the 2007 AirTrain Triennial Review Recommendations**

Staff performed the previous triennial on-site safety review in August 2007. Staff made five recommendations for corrective actions out of the fifteen checklists. Results of the Year 2007 review demonstrated that AirTrain was in compliance with its SSPP.

CPUC Commission Resolution ST-91 adopted staff's final report and ordered AirTrain to develop appropriate corrective action plan and implementation schedule to respond to the issued recommendations. Resolution ST-91 also ordered AirTrain to submit quarterly status reports tracking the implementation of these corrective actions through full completion.

AirTrain developed and submitted a corrective action plan and an implementation schedule to fulfill each of the five recommendations. On May 29, 2010, AirTrain completed the last of the five corrective actions in compliance with Commission Resolution ST-91.

#### 4. SAFETY REVIEW PROCEDURE

Staff conducted the 2010 safety review in accordance with Rail Transit Safety Section Procedure RTSS-4, *Procedure for Performing Triennial Safety Audits of Rail Transit Systems*. Staff developed thirteen (13) checklists to cover various aspects of system safety responsibilities, based on Commission and FTA requirements, AirTrain SSPP, safety-related AirTrain documents, and the knowledge of Staff of AirTrain operations. A list of the 13 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 no non-compliant findings and no recommendations corresponding to the SSPP of AirTrain, its procedures, and/or Commission regulations. The methods used to perform the review included:

- Discussions and interviews with AirTrain and Bombardier 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 AirTrain system has a comprehensive SSPP and has been effectively implementing that plan. Review findings identify no outstanding areas where changes need to 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 AirTrain is in compliance with its SSPP. The review noted no exceptions, and therefore, resulted in no recommendations from the 13 checklists. Following are the findings for each checklist:

1. **Management Implementation of Safety Program**

No findings of non-compliance; no recommendations.

2. **Safety and Security Certification, Procurement, Configurations and Modifications**

No findings of non-compliance; no recommendations.

3. **Accident and Hazard Program and Safety Data Acquisition**

No findings of non-compliance; no recommendations.

4. **Emergency Systems, Planning, and Training**

No findings of non-compliance; no recommendations.

5. **Internal Safety Audit Program**

No findings of non-compliance; no recommendations.

**6. Hours of Service**

No findings of non-compliance; no recommendations.

**7. Automatic People Mover Vehicle Inspection and Review**

No findings of non-compliance; no recommendations.

**8. Train Control and Signal Communication Inspection and Review**

No findings of non-compliance; no recommendations.

**9. Drug and Alcohol Testing, Training and Certification, and Rules and Compliance**

No findings of non-compliance; no recommendations.

**10. Guideway, Facilities, and Aerial Structures Inspection and Review**

No findings of non-compliance; no recommendations.

**11. GO 95 Right of Way Inspection and Review**

No findings of non-compliance; no recommendations.

**12. Employee and Contractor Safety**

No findings of non-compliance; no recommendations.

**13. Hazardous Materials Management Program**

No findings of non-compliance; no recommendations.

## **APPENDICES**

- A. Abbreviation and Acronym List
- B. AirTrain 2010 Triennial Safety Review Checklist Index
- C. AirTrain 2010 Triennial Safety Review Checklists

## APPENDIX A

### ABBREVIATION and ACRONYM LIST

<b>Abbreviation / Acronym</b>	<b>Description</b>
ATC	Automatic Train Control
ATP	Automatic Train Protection
BART	Bay Area Rapid Transit District
CAP	Corrective Action Plan
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
PHA	Preliminary Hazard Analysis
PM	Preventive Maintenance
RTCB	Rail Transit and Crossing Branch
RTSS	Rail Transit Safety Section
SAP	Substance Abuse Professional
SSP	System Security Plan
SSPP	System Safety Program Plan
Staff	Consumer Protection and Safety Division personnel

## APPENDIX B

### 2010 AIRTRAIN TRIENNIAL SAFETY REVIEW CHECKLIST INDEX

Checklist No.	Element / Characteristic	Checklist No.	Element / Characteristic
1	Management Implementation of Safety Program	8	Train Control and Signal Communication Inspection and Review
2	Safety and Security Certification, Procurement, Configurations and Modifications	9	Drug and Alcohol Testing, Training and Certification, and Rules and Compliance
3	Accident and Hazard Program and Safety Data Acquisition	10	Guideway, Facilities, and Aerial Structures Inspection and Review
4	Emergency Systems, Planning, and Training	11	GO 95 Right of Way Inspection and Review
5	Internal Safety Audit Program	12	Employee and Contractor Safety
6	Hours of Service	13	Hazardous Materials Management Program
7	Automatic People Mover Vehicle Inspection and Review		

## **APPENDIX C**

### **2010 AIRTRAIN TRIENNIAL SAFETY REVIEW CHECKLISTS**

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	1	Subject	Management Implementation of Safety Program
Date of Review	<b>November 8, 2010</b>	Department(s)	Management
Reviewers/Inspectors	<b>Anton Garabetian Stephen Artus</b>	Person(s) Contacted	<b>Lee Mitchell, AirTrain Manager Michael Robert, Safety and Security Manager (AirTrain) Dave Doorman, Safety Engineering Specialist (Bombardier)</b>

### REFERENCE CRITERIA

1. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
2. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 1, 3, 4

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **System Safety Program Plan Update, Control, and Implementation**

Interview AirTrain's Manager, Safety and Security Manager, and other executive managers 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:

1. Determine the source, frequency, and depth of safety and security information provided between the following parties:
  - a. San Francisco International Airport
  - b. Bombardier
  - c. AirTrain
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

#### Activities:

Staff interviewed the AirTrain Manager, Bombardier Safety Engineer, and AirTrain Safety and Security Manager to determine AirTrain management involvement, coordination, and communication to improve System Safety and Security Programs.

#### Examples:

1. Bombardier reports the following to AirTrain:

- a. Safety and security issues every morning
  - b. Monthly injury report
  - c. Data base reports on events and occurrences
  - d. Alerts including train stoppage for more than five minutes.
2. The San Francisco Airport Director communicates safety and security issues to the AirTrain Manager.
  3. AirTrain's contract with Bombardier includes a monetary incentive per month for achieving high safety and reliability standards. Bombardier also provides free meals to its employees for safe operation.
  4. Risk reduction and employee awareness is part of safety culture at AirTrain. AirTrain Manager and Safety and Security Manager are involved in accident/hazardous condition investigations and corrective actions. There have not been any accidents involving the public, but there have been injury related incidents with Bombardier employees.
  5. Bombardier has an internal tracking system used to track safety concerns on San Francisco International Airport-Safety Concern, Hazard, Near Miss & Accident Data.
  6. The AirTrain Manager and Safety and Security Manager track all safety and security corrective action plans on a database called AirTrain Action Log until their closure. Following the 2007 CPUC Triennial Safety and Security Review, the AirTrain Manager and Safety and Security Manager tracked all corrective actions which the Commission ordered to their completion

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>2</b>	Subject	Safety and Security Certification, Procurement, Configurations and Modifications
Date of Review	<b>November 8, 2010</b>	Department(s)	Engineering, Storekeeping
Reviewers/ Inspectors	<b>Jimmy Xia</b>	Person(s) Contacted	<b>Mario Borg, Technical Services Supervisor (Bombardier)</b> <b>Jeffery Douglas, Field Service Engineer (Bombardier)</b> <b>Alfredo Hinojosa, Operations &amp; Maintenance Manager (Bombardier)</b> <b>Eric Riego, Vehicle Engineer (Bombardier)</b> <b>Michael Robert, Safety and Security Manager (AirTrain)</b>

### REFERENCE CRITERIA

3. General Order 164-D: Section 3.2 Rules g, h, q, u
4. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 13, 16, 21

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

- Safety and Security Certification, Procurement, Configurations and Modifications**  
Interview the AirTrain representative in charge of the Safety Certification Program and review any supporting documents for current or planned projects to determine whether or not:
6. The Safety Certification Program is in conformance with the General Order 164-D
  7. Effective communications and liaison with CPUC staff throughout the life of a project
  8. AirTrain has a documented system modification review and approval process with specifics of sign-off requirements and exception capability.
  9. 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.
  10. AirTrain is actively addressing all the safety related issues stemming from the proposed changes to the system.
  11. Proper documentation and adequate controls and tests are in place to preclude the introduction of defective or deficient equipment into the system
  12. Safety procedures exist to mitigate safety hazards or defective or deficient equipment in the event these are introduced into the system

### RESULTS/COMMENTS

Activities:

Staff interviewed the AirTrain representatives in charge of the Safety Certification Program and reviewed supporting documents for the following projects that do not require formal safety certification.

1. Radiax Cable Replacement Project
  - a. The Radiax Cable Layout Operating Procedures Manual (OPM) (ID #: SFIA-OPM-071), dated 8/29/08, and Radiax Cable Connector Installation OPM (ID #: SFIA-OPM-073), dated 9/4/08
  - b. The job hazard analysis document that applies to the radiax cable replacement
2. Expansion Joint Cables Brackets
  - a. The Temporary Change Authorization (TCA) # SF-231, dated 10/8/09
  - b. The Field Bulletin FB-134 for the TCA, dated 10/8/09
3. Collector Shoe Material Change
  - a. TCA # SF-220, dated 9/10/07
4. HVAC Evaporator Coils Cleaning
  - a. TCA # SF-240, dated 3/1/10

Staff also reviewed the following documents related to configuration changes.

1. Field Request 972 for a safety issue related to a potential RATP software problem
2. Departure Test Log, dated 8/22/10, for vehicle #11, which contains a list of test items with fields to mark pass or fail results

Examples:

1. Radiax Cable Replacement Project
  - a. This project has been in conformance with the System Safety Program Plan.
  - b. There were no configuration changes to the radiax cable.
  - c. The Bombardier representative stated that this is an ongoing project with no completion date
2. Expansion Joint Cables Brackets
  - a. TCA # SF-231 has been approved and signed off by the SDC Originator, SDC Manager, engineers, and Performance Manager. This TCA is in conformance with the System Safety Program Plan, Section 16.
  - b. The AirTrain representatives stated that there are no safety related issues stemming from this project.
3. Collector Shoe Material Change
  - a. TCA # SF-220 has been approved and signed off by the SDC Originator, SDC Manager, engineers, and Performance Manager. It was initiated on 9/10/07 and approved on 4/22/08.
  - b. AirTrain addressed all the safety related issues that it has with this project using TCA # SF-220.
4. HVAC Evaporator Coils Cleaning
  - a. The Bombardier representative stated that AirTrain has a contractor that does work on the HVAC systems and the contractor would perform regular check of the HVAC systems. He said that there haven't been any problems with the HVAC systems recently.
5. According to the AirTrain representatives, from 2007 to today, there have been no configuration changes, upgrades, or expansions to the AirTrain system that require a safety certification program.
6. The AirTrain Operating System San Francisco International Airport Rule Book, dated August 2010, has safety procedures to mitigate safety hazards or defective or deficient equipment in the event these are introduced into the system for every project.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>3</b>	Subject	Accident and Hazard Program and Safety Data Acquisition
Date of Review	<b>November 9, 2010</b>	Department(s)	Safety
Reviewers/ Inspectors	<b>Rupa Shitole</b>	Person(s) Contacted	<b>David Dorman, Safety Engineering Specialist (Bombardier)</b>

### REFERENCE CRITERIA

5. General Order 164-D: Section 3.2 Rules f, i, j
6. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 5, 6, 14
7. AirTrain Operating Rulebook, Revision No. 3, Dated August 2010
8. Health, Safety, and Environment (HSE) Alert Process
9. TTS HSE Investigation Procedure
10. TTS HSE Reporting
11. Reporting, Investigation, HSE Database Entries and Alerts – as it relates to the SCHNM Report Form
12. Safety Concern/Hazard/Near Miss (SCHNM) Report Decision Making Flowchart

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Accident and Hazard Program and Safety Data Acquisition**

Interview AirTrain representatives directly involved in accident and hazard reporting and review four accident, near miss, or hazard reports as well as appropriate documentation since 2006 to determine whether or not:

1. All accidents meeting the requirements of General Order 164-C or General Order 164-D were reported to the CPUC within the required time and investigated appropriately.
2. Recommendations from AirTrain for corrective actions are reviewed by the responsible persons and implemented into corrective action plans in a timely manner.
3. Monthly corrective action status reports are updated and submitted to the CPUC

Interview AirTrain representatives involved in hazard management and safety data acquisition and review appropriate documentation to determine whether or not:

1. AirTrain 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.
2. The above process was followed to identify, categorize, and bring hazards down to acceptable levels of risk (provide specific examples).
  - a. Hazard analysis and reports are completed and performed on a periodic basis
  - b. Hazards identification notification should include but are not limited to
    - i. Operations and Maintenance Personnel Hazards
    - ii. Failure Modes and Effects Analysis
    - iii. Fault Tree Analysis
3. AirTrain has a documented process for the collection and analysis of unsafe trends due to external uncontrollable factors that may impact the system's operations

4. The process was followed for identifying safety issues and resulted in recommendations that were implemented

#### RESULTS/COMMENTS

Activities:

Staff interviewed AirTrain representative in charge of Accident and Hazard Program and Safety Data Acquisition Analysis. AirTrain staff upon request provided the following information on accidents, managing hazards, collecting safety data and its analysis:

1. Final incident investigation report for October 24, 2008.
2. Staff requested and reviewed Hazard Analysis Document dated November 12, 2007, April 22, 2008, and August 2, 2010.
3. 2010 San Francisco International AirTrain Injury and Illness data.
4. 2010 San Francisco International AirTrain Safety Concern, Hazards, Near Misses and Accident data including the following.
  - a. Report # 3859 dated March 9, 2010 related to Safety Concern was closed on May 14, 2010.
  - b. Report #4249 dated May 20, 2010 related Safety Concern was closed on June 20, 2010.
  - c. Report #4797 dated September 10, 2010 related Hazard was closed on October 10, 2010.
  - d. Report #4955 dated October 6, 2010 related Safety Concern is still open and in progress.

Examples:

1. AirTrain had one reportable incident/accident on October 24, 2008 to CPUC according to General Order 164-D requirements since year 2006.
  - a. AirTrain notified CPUC in a timely manner of the incident.
  - b. All corrective actions were discussed and reviewed by the responsible persons and implemented in a timely manner.
  - c. AirTrain did not have any reportable incident/accident (s) after year 2008.
2. AirTrain has an acceptable process for documenting, reporting and tracking safety concerns, hazards, and near miss incidents using the Safety Concern/Hazards/Near Miss Report Form. Refer to TTS-40-1045-004736 document.
3. From the 2010 AirTrain Injury and Illness data, it showed 15 items were closed while 4 still remain open and will be closed in a timely manner. All the data is entered into a corporate HSE database.
4. From the 2010 San Francisco International AirTrain Safety Concern, Hazards, Near Misses and Accident data, a log showed 88 items were closed while 1 still remain open and will be closed in a timely manner. All the data is entered into a corporate HSE database. This report included 88 safety concerns, 1 hazard and no near miss entries.
5. Staff found no unacceptable hazard for year 2008, 2009 and 2010.
6. Staff found the Hazard Management and Safety Data Acquisition Analysis to be in order.
7. Staff found all corrective actions were properly documented and tracked related to the overall system.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>4</b>	Subject	Emergency Systems, Planning, and Training
Date of Review	<b>November 8, 2010</b>	Department(s)	Security
Reviewers/Inspectors	<b>Vincent Kwong</b>	Person(s) Contacted	<b>Lorraine Bockmier, Operations Supervisor (Aviation Security) Michael Robert, Safety and Security Manager, (AirTrain)</b>

### REFERENCE CRITERIA

13. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
14. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 12, 15
15. AirTrain Operating Rule Book Revision No. 3, Dated August 2010; Section 4
16. Emergency Action & Fire Protection Plan Maintenance & Storage Facility (MSF)

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Emergency Systems, Planning, and Training**

Interview AirTrain representative responsible for Emergency Response Management, Planning, and Training program and review records and documentation for the last three years to determine whether or not:

13. The Emergency Action and Fire Protection Plan as well as the Operating Rule book is reviewed and revised as necessary by the Safety Department on an annual basis. All revisions are approved by the AirTrain Manager.
14. Regularly scheduled meetings are conducted with appropriate external agencies (local, state, and federal agencies) to coordinate emergency response planning.
15. Mutual aid agreements or memorandum of understandings are established with external agencies
16. Emergency drills that included tabletop and practical exercises were periodically planned and carried out with the involvement of appropriate external agencies. All drills were performed at least once a year and any deficiencies or participant critiques were documented, scheduled and tracked to completion.
17. Training is made available to all relevant emergency response agencies in the SFO facility.
18. Emergency planning addresses both accidental emergencies as well as security related emergencies.
19. The SSPP describes or references how AirTrain documents the results of its emergency preparedness evolutions (i.e. briefings, after action report recommendation/findings and corrective actions
20. Communications systems are tested for interoperability with appropriate emergency response agencies

Select two locations at a facility or along the guideway to test the access and egress system.

Review AirTrains records of preventative maintenance, testing, and unscheduled maintenance activities for two separate periods during the last three years for the following components:

1. Sprinkler System
  - a. Randomly select at least one separate reported areas to determine whether or not:
    - i. All sprinkler systems were inspected at the correct frequency
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner
2. Wet Stand Pipe
  - a. Randomly select at least one separate reported areas to determine whether or not:
    - i. All wet stand pipes were inspected at the correct frequency
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner

#### RESULTS/COMMENTS

Activities:

Staff interviewed the Operations Supervisor for Aviation Security and the Safety and Security Manager for AirTrain and reviewed the following records and documents:

1. The Emergency Action and Fire Protection Plan Maintenance and Storage Facility Rev. 1 dated 11/8/10.
2. The Operating Rule Book Rev. 3 dated 7/19/10.
3. Meeting agendas and sign-up sheets from October 2009 to September 2010 for the monthly Emergency Operations Group meeting.
4. Current scores and records from computer based emergency training for all AirTrain employees including Central Control, First Shift, Second Shift, Third Shift, and General Staff.
5. Records of weekly toolbox trainings which AirTrain shift supervisors administer to the technicians on rulebook materials, best practices, and emergency procedures.
6. Staff reviewed documents pertaining to the following meetings and emergency tabletop drills:
  - a. AirTrain Safety and Security Committee Meetings – 2007 to 2009
  - b. 2009 AirTrain Emergency Exercise – 6/9/2009
  - c. Airport Crisis 2010 – A Functional Exercise – 9/22/2010
  - d. 2010 Aviation Security Annual Table Top Exercise – 5/20/10
7. Monthly preventative maintenance records for communication systems between 2007 to 2010 including the following:
  - a. Blue Light Station Phones
  - b. Power Warning Lights
  - c. Central Control Communications
  - d. Station Platform Phones
8. Semiannual inspection and testing forms for water flow and appliance circuits for 2007
9. Weekly preventative maintenance emergency systems records between 2007 to 2009 including the following:
  - a. cFirst Aid Kit

- b. Fire extinguisher inspection
- c. Indicator lights
- d. Intrusion Alarm
- e. Uninterruptible equipment power supply alarm history
- f. Eyewash inspection tag

Examples:

1. AirTrain reviews the Emergency Action and Fire Protection Plan Maintenance and Storage Facility on a basis of need.
2. AirTrain reviews the Operating Rule Book annually and approves the document with the signature of the Site Director, Engineering Supervisor, Safety Engineer Specialist, and the Central Supervisor. The following records the dates where the reviews have taken place:
  - a. 8/10/07
  - b. 8/04/08
  - c. 8/18/09
  - d. 7/19/10
3. Although there are no formal memorandum of understandings or mutual aid agreements, AirTrain falls under the authority of the San Francisco International Airport, which receives aid from local emergency response authorities including the San Francisco Fire Department and Police Department. These agencies also attend the Emergency Operations Group meetings.
4. Although San Francisco International Airport coordinates and conducts some of the table top exercises and emergency drills, AirTrain participates and documents the results accordingly.
5. AirTrain has a comprehensive and complete preventative maintenance program for emergency systems.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>5</b>	Subject	Internal Safety Audit Program
Date of Review	<b>November 8, 2010</b>	Department(s)	Management
Reviewers/ Inspectors	<b>Erik Juul</b>	Person(s) Contacted	<b>Michael J. Robert, Safety and Security Manager</b>

### REFERENCE CRITERIA

- 17. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 18. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 7

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Internal Safety Audit Program**

Interview the AirTrain representative in charge of the Internal Safety and Security Audit (ISSA) Program and review the audit reports for year 2007-2009 and determine whether or not:

- 21. All of the required safety and security program elements were covered within a three year audit cycle and in compliance with the SSPP and SSP. The audits were evaluated by qualified auditors who are independent from the first line of supervision responsible for performance of the activity being audited.
- 22. The ISSA reports were prepared with the AirTrain Manager's certification and submitted to the CPUC by February 15<sup>th</sup> of each year and corrective action plan recommendations were prepared, tracked and implemented in a timely manner.
- 23. 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.
- 24. The findings, recommendations, and CAPs from the ISSA are evaluated and directed to the appropriate responsible persons.
- 25. CAPs are tracked in their progress and closed in a timely manner in reference to the projected scheduled.

### RESULTS/COMMENTS

#### Activities:

Staff interviewed AirTrain personnel and reviewed the following records of the Internal Safety Audit Program:

- 1. 2009 Internal Safety and Security Audit Report
- 2. Corrective Action Items Log

#### Examples:

- 1. The Safety and Security Manager and the AirTrain Manager conducted the Internal Safety Audits in 2007, 2008, and 2009. All the required safety and security program elements were covered within the three year audit cycle.
- 2. AirTrain submitted the 2009 ISSA report CPUC on February 10, 2010. All corrective

action plan recommendations were prepared, tracked and implemented in a timely manner.

3. AirTrain invited CPUC for scheduled internal safety audits. There were no changes to the schedule.
4. The AirTrain Safety Action Item Database (SAID) revealed findings, recommendations, and Corrective Actions Plans from the Internal Safety and Security Audit which were evaluated and directed to the appropriate responsible persons.
5. The Corrective Action Plans from the Internal Safety and Security Audit are tracked in their progress and closed in a timely manner in reference to the projected schedule.

Findings:

None

Recommendations:

None

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>6</b>	Subject	Hours of Service
Date of Review	<b>November 8, 2010</b>	Department(s)	Human Resources
Reviewers/ Inspectors	<b>Arun Mehta</b>	Person(s) Contacted	<b>Karen Nelson, Site Coordinator(Bombardier)</b>

### REFERENCE CRITERIA

- 19. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 20. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 17.3
- 21. AirTrain Operating Rulebook Revision No. 3, Dated August 2010; Section 2.1.6

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Hours of Service**

Randomly select a minimum of one employee from each safety sensitive job classifications:

- Recovery Technician
- Maintainers
- Shift Supervisors
- Central Control Operators

Review 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 Site Coordinator for Bombardier and reviewed the time sheets pertaining to Hours of Service for the following:

1. Two Maintainers and Recovery Technicians during the weeks of 12/7/09 and 4/5/09.
2. Two Central Control Operators during the week of 12/7/09

#### Examples:

1. Out of a total of 70 Bombardier staff, 54 fall in the category of hourly "union employees" and 16 salaried staff. The union staff falls in the category of Recovery Technician, Maintainers and Central Control Operators. Same staff is used for the job of Maintainers and Recovery Technicians on as needed basis. There are two Recovery Technicians per shift and they rotate. There are currently 11 Central Control Operators with one vacancy. Shift Supervisors are "salaried staff" and do not punch clock.
2. All safety sensitive employees are subject to the maximum 12 hour work restriction as per their SSPP Section 17.3. Salaried employees do not punch clock but they are instructed to strictly follow the company "Hours of Service" rules.
3. Staff found Bombardier staff to be in compliance of the "Hours of Service" rules.

4. Two employees claimed a 20 hr (8 hr overtime) day (one in November 2010 and the other in April 2010) because they were travelling overseas for work and their time included the flight and travel time.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR Air Train SFO

Checklist No.	<b>7</b>	Subject	Automatic People Mover Vehicle Inspection and Review
Date of Review	<b>November 8, 2010</b>	Department(s)	Management
Reviewers/Inspectors	<b>Michael Borer</b>	Person(s) Contacted	<b>Paul Cardoso, Maintenance Supervisor (Bombardier)</b> <b>Robert Viernes, Training Supervisor for Operations and Maintenance (Bombardier)</b>

### REFERENCE CRITERIA

- 22. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 23. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 9
- 24. Air Train Operating Rulebook Revision No. 3, Dated August 2010; Section 3
- 25. SIMS PM Forms

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Automatic People Mover Vehicle Inspection and Review**

Randomly select at least four CX-100 APM cars at the Maintenance Facility and perform a detailed inspection including but not limited to the following prior to release of the vehicle to determine if Air Train vehicles are properly and adequately maintained according to the referenced criteria:

1. Wheel
2. Visual inspection of the following:
  - a. Door operation
  - b. Safety appliances
3. Traction motors
4. Train Control Hardware
5. Brake system
6. VATC

Randomly select a minimum of four CX-100 APM cars to review the completed Preventative Maintenance (PM) and Field Tests records over the last two years to determine whether or not:

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

### RESULTS/COMMENTS

Activities:

Staff interviewed AirTrain representatives, inspected facility equipment, and reviewed

maintenance records to evaluate the maintenance program.

1. Random sampling of mechanical records including the following:
  - a. Daily Inspections
  - b. Mileage Mandated Inspections
2. Inspections of three CX-100 Automated People Mover (APM) vehicles
3. Preventative maintenance records of the CX-100 APM vehicles for years 2008 and 2009
4. One event of an outbound inspection

Examples:

1. Inspection of CX-100 APM vehicles:
  - a. Car # 001 - No Defects
  - b. Car # 003 - No Defects
  - c. Car # 005 - No Defects
2. Preventative maintenance records of CX-100 APM vehicles
  - a. Car# 004
    - i. 6500 miles at year 2008
    - ii. 19500 mile at year 2009
  - b. Car# 021
    - i. 6500 mile at year 2008
    - ii. 19500 mile at year 2009
  - c. Car# 026
    - i. 39000 mile at year 2008
    - ii. 78000 mile at year 2009
  - d. Car# 036
    - i. 39000 mile at year 2008
  - e. Car# 016
    - i. 250000 mile at year 2009
3. Outbound inspection after maintenance
  - a. Car #005
    - i. All items required by the Outbound inspection form were in compliance

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>8</b>	Subject	Train Control and Signal Communication Inspection and Review
Date of Review	<b>November 8, 2010</b>	Department(s)	Engineering Maintenance
Reviewers/Inspectors	<b>Tom Govea</b>	Person(s) Contacted	<b>Alfredo Hinojosa, Bombardier Site Manager</b>

### REFERENCE CRITERIA

- 26. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 27. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 9
- 28. AirTrain Operating Rulebook Revision No. 3, Dated August 2010; Section 3
- 29. SIMS PM Form – Switches Monthly

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Train Control and Signal Communication Inspection and Review**

- 29. Review and evaluate the compliance of AirTrain train control and signal inspection maintenance programs and standards.
- 30. Randomly select at least two sections of the mainline and perform detailed inspections of the train control and signal systems and components to determine whether or not they are in compliance with the applicable reference criteria.

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

- 1. RATP
  - a. Randomly select at least two sections and review their inspection reports to determine whether or not:
    - i. The following components at a minimum were inspected at the correct frequency
      - 1. Speed restriction
      - 2. Train routing verification
      - 3. Station and access doors
      - 4. Conflict point determination
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner
- 2. RATO
  - a. Randomly select at least one section and review their inspection reports to determine whether or not:
    - i. All components related to schedule routing and non-vital functions were inspected at the correct frequency
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner

## RESULTS/COMMENTS

### Activities:

Staff interviewed Bombardier personnel, reviewed reports, and inspected the AirTrain system for the following:

1. Two Station and access doors for 7/9/2010 and 9/30/2010
2. Preventative Maintenance for Station access doors, GAG Doors and Emergency Doors
3. Automatic Train Protection system for region 1 and region 2 redundant system
4. The FMS Logs for 7/20/2010 at 0700 hours and 11/6/2010 at 0900 hours.
5. Two field tests:
  - a. FR 1315 – Immediate, status open 10/15/2008, requires software changes, simulated testing and implementing into the system, status closed 2/18/2010.
  - b. FR 1234 – Immediate, status open 3/3/2008, Central Control receiving false graphic, requiring system up grade graphic, status closed 9/28/2010.
6. Switch 101 components and test records dated 7/1/10, 7/14/10, and 8/6/10.

### Examples:

1. Inspection reports were properly documented and noted defects were corrected in a timely manner.
2. The maintenance program utilizes a daily report, available for each of the three shifts, identifies overdue items, delays, and train performance ratios for preventative maintenance.
3. Bombardier tests RATO components daily for failures or abnormal events. In the result of any of these, Bombardier will generate a Field Request Form which identifies various priorities: Safety, being the highest priority, Immediate, Standard, Enhancement (new), and Future.

### Findings:

None.

### Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>9</b>	Subject	Drug and Alcohol Testing, Training and Certification, and Rules and Compliance
Date of Review	<b>November 8, 2010</b>	Department(s)	Safety, Training
Reviewers/Inspectors	<b>Erik Juul</b>	Person(s) Contacted	<b>David Dorman, Safety Engineering Specialist (Bombardier)</b>

### REFERENCE CRITERIA

30. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
31. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 11, 17, 19
32. AirTrain Operating Rule Book Revision No. 3, Dated August 2010
33. HR-22 Substance Abuse Policy
34. Training Records

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Drug and Alcohol Testing, Training and Certification, and Rules and Compliance**

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

1. The current 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 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 AirTrain policy and other regulatory requirements

Randomly select at least five AirTrain 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

Interview AirTrain’s representative responsible for Rules Compliance and review records and documentation for the last three years to determine whether or not:

- 31. Revisions or changes to the Operations Rules and Procedures Manual are performed systematically and distributed to the relevant personnel
- 32. Bulletins or notifications are issued in a timely manner and provided to employees as necessary with adequate information for them to carry out their responsibilities safely and securely
- 33. Any discrepancies and corrective actions were mitigated and tracked in a timely manner until completion

Interview the AirTrain representative in charge of the Employee Safety Program to determine whether or not:

- 1. An appropriate procedure and reporting form is available for employees to effectively report safety hazards in the work place
- 2. Employees 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

Randomly select at least two employees from each of the following departments and review employee safety program records to determine whether or not each employee has received the appropriate safety training in respect to their classification:

- a. Maintenance
- b. Engineering

**RESULTS/COMMENTS**

Activities:

Staff interviewed AirTrain personnel and reviewed records of Drug and Alcohol Testing, Training and Certification, and Rules and Compliance including the following:

- 1. Drug and Alcohol Program
- 2. Airtrain Operating System SFIA Rule Book, dated August 2010
- 3. Training records for following two classifications:
  - a. Engineers in the Engineering Department
  - b. Vehicle Operators in the Maintenance Department

Examples:

Drug and Alcohol Testing

- 1. The current Substance Abuse Program is not subject to FTA guidelines.
- 2. Bombardier performs the following tests for employees:
  - a. Pre-employment – Yes, employees were tested
  - b. Reasonable suspicion – Yes, employees were tested.
  - c. Post-Accident – Yes, employees were tested.
  - d. Random – Yes, employees were tested.
  - e. Return to Work – Yes, employees were tested.
  - f. Follow-up – No, employees are not tested, because, if found positive, an

employee is terminated

Rules Compliance

1. AirTrain reviews the rule book annually. Supervisors will provide available feedback.
2. AirTrain distributes bulletins and notifications at the monthly employee meetings. The bulletins and notifications contain adequate information for employees to carry out their responsibilities safely and securely.
3. Employee suggestions are reviewed and tracked. 88 issues have been raised so far in 2010 and 86 issues have been closed. The goal is to close issues within 30 days. Corrective action plans are implemented as necessary and tracked until completion.

Employee Safety Program

1. The training records for Engineers and Vehicle Operators showed that they received the appropriate safety training in respect to their classification.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>10</b>	Subject	Guideway, Facilities, and Aerial Structures Inspection and Review
Date of Review	<b>November 9, 2010</b>	Department(s)	Management
Reviewers/Inspectors	<b>Jimmy Xia</b>	Person(s) Contacted	<b>Mario Borg, Technical Services Supervisor (Bombardier)</b> <b>Jeffery Douglas, Field Service Engineer (Bombardier)</b> <b>Alfredo Hinojosa, Operations &amp; Maintenance Manager (Bombardier)</b> <b>Eric Riego, Vehicle Engineer (Bombardier)</b> <b>Michael Robert, Safety and Security Manager (AirTrain)</b> <b>Lee Mitchell, AirTrain Manager (AirTrain)</b>

### REFERENCE CRITERIA

- 35. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 36. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 8
- 37. SIMS PM Forms – Station Doors, Seismic Joints

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Guideway, Facilities, and Aerial Structures Inspection and Review**

Interview AirTrain representatives to determine whether or not:

1. The facilities inspection program meets the requirements of the reference criteria.
2. An inspection program geared towards inspection of structures and facilities is reviewed and revised as necessary to effectively address the conditions in the system.

Randomly select two locations and their respective reports in the last three years to determine whether or not:

1. The frequency of inspections is met as required in the inspection schedule.
2. Any findings or discrepancies are reported and directed to the appropriate responsible persons and mitigated in a timely manner.

### RESULTS/COMMENTS

#### Activities:

Staff interviewed the AirTrain representatives regarding AirTrain's facilities inspection program and the revision process of its inspection program of structures and facilities including the following:

1. AirTrain's Site Information Management System (SIMS)
2. San Francisco Airport ALRS Station Door System Operation & Maintenance Manual, SF. O&M. Rev. 1, dated 2002.

3. Inspection reports for the following:
  - a. Station Doors
    - i. West Field Road Station Platform 4 (Equipment ID: WFR4)
      1. Monthly SIMS station doors inspection forms for the station doors on WFR4 dated 9/15/09, 10/18/09, 11/24/09, 12/18/09, 1/20/10, 3/3/10, 4/14/10, 5/14/10, 7/7/10, 8/5/10, 8/29/10, and 10/16/10 and the annual SIMS station doors inspection form for the same dated 9/20/10
    - ii. Rental Car Center Station Platform 1 (Equipment ID: RCC1)
      1. The monthly SIMS station doors inspection forms for the station doors on RCC1 dated 8/13/09, 9/14/09, 10/14/09, 11/13/09, 12/12/09, 1/17/10, 3/10/10, 4/12/10, 5/24/10, 6/28/10, and 8/19/10 and the annual SIMS station doors inspection form for the same dated 8/31/10
  - b. Guideways
    - i. Equipment ID: ITG2-SB61 (International Terminal G to Switch 61)
      1. Monthly inspections for this section of the guideways from July 2009 to October 2010
    - ii. Equipment ID: ITG2-SB63 (International Terminal G to Switch 63)
      1. The monthly SIMS guideway inspection records for this section of the guideways dated 1/7/10, 3/27/10, 5/6/10, 6/18/10, and 7/28/10
    - iii. Equipment ID: REG1\_MAINT (Region 1 Maintenance Yard)
      1. The monthly SIMS guideway inspection records for this section of the guideways dated 2/1/10, 3/19/10, 4/25/10, 5/17/10, 9/4/10, and 10/31/10
  - c. Seismic Joints
    - i. Equipment ID: SJ6 located at International Terminal A
      1. The biweekly SIMS seismic joint inspection forms for this seismic joint dated 1/5/10, 2/8/10, 2/19/10, 3/15/10, 3/27/10, 4/18/10, 5/9/10, 5/21/10, 10/28/10, and 11/4/10
    - ii. Equipment ID: SJ12 located at International Terminal G
      1. The biweekly SIMS seismic joint inspection forms for this seismic joint dated 1/28/10, 3/17/10, 4/8/10, 4/22/10, 5/6/10, 5/20/10, 10/22/10, and 11/6/10

Examples:

1. AirTrain inspects its station doors monthly and annually, its guideways every month, and its seismic joints every two weeks. Since April 2010, AirTrain combined the power rail and guideway inspections checklists into one monthly SIMS PM checklist labeled Power Rail Inspection.
2. AirTrain, currently, does not have certified employees to inspect concrete/aerial structures. There is a capital plan project planned for 2012 to develop the procedure, process, and certification for including this inspection into the maintenance program.
3. Bombardier reviews the San Francisco Airport ALRS Station Door System Operation & Maintenance Manual and guidelines for guideway and seismic joints inspections annually.

4. The facilities inspection program meets the requirements of the reference criteria with the following:
  - a. Station Doors
    - i. West field Road Station Platform 4 (Equipment ID: WFR4)
      - a. All monthly inspections for the station doors on WFR4 from October 2007 to October 2010 were performed except the inspections for January, March, July, September, and November 2008, June and August 2009, and February and June 2010 were not done.
      - b. All annual inspections for the station doors on WFR4 from 2007 to 2010 were performed.
      - c. All defects that were noted on the inspection records for the station doors on WFR4 that staff reviewed were corrected in a timely manner.
    - b. Rental Car Center Station Platform 1 (Equipment ID: RCC1)
      - a. All monthly inspections for the station doors on RCC1 from September 2007 to October 2010 were performed except the inspections for October 2007, February, June, and September 2008, and February 2010 were not done.
      - b. All annual inspections for the station doors on RCC1 from 2007 to 2010 were performed.
      - c. All defects that were noted on the inspection records for the station doors on RCC1 that staff reviewed were corrected in a timely manner.
  - ii. Guideways
    - a. Equipment ID: ITG2-SB61 (International Terminal G to Switch 61)
      - a. All monthly inspections for this section of the guideways from July 2009 to October 2010 were performed except the inspections for August, September, and November 2009 and February and April 2010 were not done.
    - b. Equipment ID: ITG2-SB63 (International Terminal G to Switch 63)
      - a. One of the discrepancies that were noted on the monthly SIMS power rail inspection form for this section of the guideways dated 7/28/10 was corrected in a timely manner, and the other discrepancies are in SIMS punch list to be mitigated in the near future. All defects that were noted on the other inspection records for this section of the guideways that staff reviewed were corrected in a timely manner.
    - c. Equipment ID: REG1\_MAINT (Region 1 Maintenance Yard)
      - a. All monthly inspections for this section of the guideways from October 2007 to October 2010 were performed except the inspections for December 2007, March and July 2008, January and July 2009, and January 2010 were not done.
      - b. One of the two discrepancies that were noted on the monthly SIMS power rail inspection form for this section of the guideways dated 10/31/10 was corrected, and the other open discrepancy is in SIMS punch list to be mitigated in a timely manner. All defects that were noted on the other inspection records for this section of the guideways that staff

reviewed were corrected in a timely manner.

iii. Seismic Joints

a. Equipment ID: SJ6 located at International Terminal A

a. All the biweekly inspections for this seismic joint from October 2009 to November 2010 were performed except no inspections were done in December 2009, and one inspection in January and one inspection in April 2010 were not done.

b. The biweekly SIMS seismic joint inspection forms for this seismic joint that staff reviewed showed that no discrepancies were found from these inspections and noted defects were corrected in a timely manner.

b. Equipment ID: SJ12 located at International Terminal G

a. All the biweekly inspections for this seismic joint from October 2009 to November 2010 were performed except one inspection in October 2009 and one inspection in January 2010 were not done, and no inspections were done in February 2010.

b. The biweekly SIMS seismic joint inspection forms for this seismic joint that staff reviewed showed that no discrepancies were found from these inspections and noted defects were corrected in a timely manner.

iv. According to the Bombardier representatives, all missing inspections of station doors, guideways, and seismic joints as mentioned above were completed on a later date due to rain or inclement weather conditions. For safety reasons, AirTrain defers these types of inspections until the weather is clear. If inspections are skipped, the scheduled dates of the inspections will indicate an overdue status for technicians to address.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>11</b>	Subject	GO 95 Right of Way Inspection and Review
Date of Review	<b>November 10, 2010</b>	Department(s)	Engineering, Maintenance
Reviewers/Inspectors	<b>Arun Mehta</b>	Person(s) Contacted	<b>Mario Borg, Technical Services Supervisor (Bombardier) Jeffery Douglas, Field Service Engineer, (Bombardier)</b>

### REFERENCE CRITERIA

- 38. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 39. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 8
- 40. General Order 95: Rule 79
- 41. General Order 128
- 42. SIMS PM Forms – Blue Station Lights, Power Rail

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **GO 95 Right of Way Inspection and Review**

- 34. Randomly select at least one section from the blue line and one from the red line and perform visual and dimensional inspection/measurements to determine whether or not all right of way components are in compliance with the applicable reference criteria
- 35. Randomly select at least two substations on the Power Distribution System (PDS) to determine if they are in compliance with General Order 128.
- 36. Review AirTrain's records of preventative maintenance, scheduled and unscheduled maintenance activities for two separate periods during the last three years for the Power Distribution System.
  - b. Randomly select at least two separate recorded inspection to determine whether or not:
    - i. All warning signs were inspected at the correct frequency
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner
  - c. Randomly select at least two substations with recorded inspection to determine whether or not:
    - i. The required inspections were completed at the correct frequency
    - ii. The required inspections were properly documented and noted defects were corrected in a timely manner

### RESULTS/COMMENTS

#### Activities:

Staff interviewed the Technical Services Supervisor and Field Service Engineer of Bombardier and performed an inspection and field observation of the Red and the Blue Lines on the following:

- 1. Signage and condition of the Power Rail along the Fixed Guideway system.

2. Inspection of the International Terminal (Section ITA-B2)
3. Two substations inspection of the Power Distribution System (PDS) at the following locations:
  - a. Maintenance Facility (MSF-PDS)
  - b. International airport terminal (South ITA-PDS)
4. Preventive Maintenance (PM) records of switches, and other PDS components in the computerized Site Information Management System (SIMS)
5. Installation of an Uninterrupted Power Supply/Train Registration System (UPS/TRS) NiCad Battery at the MSF PDS station
6. Routine maintenance for a M203 Feed Breaker at the MSF-PDS station
7. PM records for the following components:
  - a. Circuit Breakers at International Terminal Garage (ITG) - 7/14/08, 9/17/10, and 9/18/10.
    - i. MIN 401
    - ii. 402 MV
  - b. Transformers at International Terminal Garage (ITG) - 6/22/08, 9/17/10, and 9/21/10
    - i. MCT1
    - ii. MCT2
  - c. Circuit Breakers at Maintenance Facility (MSF) – 5/9/08, 6/1/08, and 7/29/10
    - i. M101
    - ii. M102 LV

Examples:

1. All the signs along the Fixed Guideway system (Section ITA-B2) on both the Red and Blue Lines were properly marked.
2. The Power Rail was properly covered and high voltage signs posted.
3. From the two substation inspections of the PDS
  - Blue Light and Emergency phones and Fire Extinguishers were found
  - Lock out/Tag out (LOTO) stations were functional
  - Emergency evacuation plans were posted near all elevators
  - Water based fire extinguishing facility was seen to exist at the PDS facilities.
4. The total staff of 57 union workers are trained in the Lock out/Tag out procedures.
5. PM records for the circuit breakers, transformers, and circuit breakers were reviewed and found to be properly performed and recorded.

Findings:

None

Recommendations:

None

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>12</b>	Subject	Employee and Contractor Safety
Date of Review	<b>November 8, 2010</b>	Department(s)	Safety, Training
Reviewers/ Inspectors	<b>Rupa Shitole</b>	Person(s) Contacted	<b>David Dorman, Safety Engineering Specialist (Bombardier)</b>

### REFERENCE CRITERIA

- 43. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 44. System Safety Program Plan Revision No. 2, Dated June 20, 2008; Section 20
- 45. Injury Illness Prevention
- 46. Form HSE Training

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Employee and Contractor Safety**

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

- 37. An appropriate reporting procedure is available for employees or contractors to effectively report safety hazards in the work place.
- 38. Appropriate corrective action plans and schedule are developed and tracked to completion to address all reported hazards
- 39. A safety committee meets periodically and addresses employee or contractor related safety issues until close out.
- 40. The training program standards, course implementation, and compliance to the rules and procedures are reviewed, modified as necessary, and are performed to meet the requirements of the reference criteria.
- 41. Agreements and contracts outline enough details to ensure that contractors understand the importance of safety preparation at AirTrain.

Randomly select two projects AirTrain has outsourced to contractors and review the safety work plans and training or certification records as necessary to determine whether or not:

- 1. Contracted employees have received the all the required training to safely perform his/her duties
- 2. Contractor safety procedures and policies clearly demonstrate that the contractors are responsible to comply with AirTrain's safety rules and procedures.

### RESULTS/COMMENTS

#### Activities:

Staff interviewed AirTrain representative from System Safety in charge of Employee and Contractor Safety Program. AirTrain staff upon request provided the following information:

- 1. Health, Safety, and Environment (HSE) Program
- 2. Injury Illness Prevention Plan (IIPP) Rev. 2, dated 11/4/2010

3. TTS-40-1045-004736 document
4. Safety Concern, Hazards, and Near Misses (SCHNM's)

Examples:

1. New employees undergo required safety training. In addition, the Health, Safety, and Environment (HSE) Reporting and HSE Alert Process Procedures train employees and contractors to report safety concern, hazard, and near misses.
2. AirTrain has an acceptable process for documenting, reporting and tracking safety concerns, hazards, and near miss incidents using the Safety Concern/Hazards/Near Miss Report Form. All corrective action plans and schedule are developed and tracked into the SCHNM folders to completion to address all reported hazards. Also all data is entered and updated into a HSE corporate database.
3. The Joint Safety Committee meets once every month to address employee or contractor related safety issues. AirTrain also tracks any safety issues which result in a corrective action until completion.
4. AirTrain staff recently made changes to update the training section of the Injury Illness Prevention Plan (IIPP). This verifies that AirTrain reviews and modifies its training programs as required.
5. In the past three years, AirTrain has hired custodial contractors only. AirTrain agreements and contracts outline necessary details to ensure that contractors understand the importance of safety preparation in the system.
6. All contractors are required to take the safety training as required by AirTrain to safely perform his/her duties at AirTrain.
7. Contractor safety procedures and policies clearly outline that the contractors are responsible to comply with AirTrain's safety rules and procedures.

Findings:

None.

Recommendations:

None.

## 2010 CPUC SYSTEM SAFETY REVIEW CHECKLIST FOR AirTrain SFO

Checklist No.	<b>13</b>	Subject	Hazardous Materials Management Program
Date of Review	<b>November 8, 2010</b>	Department(s)	Safety
Reviewers/Inspectors	<b>Arun Mehta</b>	Person(s) Contacted	<b>David Dorman, Safety Engineer (Bombardier)</b>

### REFERENCE CRITERIA

- 47. General Order 164-D: Section 3.2 Rules a, b, d, e; Section 3.5
- 48. System Safety Program Plan Revision No. 2, Dated June 20, 2008, Section 18

### ELEMENT/CHARACTERISTICS AND METHOD OF VERIFICATION

#### **Hazardous Materials Management Program**

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

- 6. The hazardous material and environmental management programs comply with the Federal, State and Local regulatory requirements and have been reviewed and updated accordingly.
- 7. AirTrain 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, including those contained in the Hazardous Communications Standard.
- 8. All emergency accessible equipment for handling hazardous materials is available and inspected routinely.
- 9. All noted discrepancies have been addressed and corrected in a timely manner

### RESULTS/COMMENTS

#### Activities:

Staff interviewed the Bombardier Safety Engineer and reviewed relative documents including the following:

- 1. Hazardous Materials Management Program
- 2. Hazardous Material Business Plan, dated 10/15/2010 certified by the Site Director for Bombardier
- 3. Hazard Communication (HAZCOM), dated 5/27/2008
- 4. Hazardous Materials Training Program

#### Examples:

- 1. The Hazardous Materials Management Program AirTrain is in conformance with Federal and California OSHA.
- 2. All new AirTrain and contract employees receive Hazardous Materials training which includes the following subjects:
  - a. Reporting requirements

- b. Inventory control storage
  - c. Product release or spill
  - d. Response and cleanup of spill incidents
  - e. Hazardous Communications Standard
3. AirTrain has a "Self Contained Eye Wash Facility" in the Power Distribution System room where the Nickel Cadmium batteries are stored for providing emergency power. This facility houses special saline based solution for eye wash in case somebody gets into an accident with the highly toxic potash solution which is used in the NiCad batteries. AirTrain or Bombardier crew does not service these batteries; an outside contractor does a monthly servicing maintenance. The eyewash facility is checked weekly by contractor crew.
  4. "House water based eye wash facilities" are located in the shop areas on the third floor. These are checked and maintained on a regular basis.
  5. Fire Extinguishers are located on all the floors.
  6. Flammable liquids are stored in yellow cabinets.
  7. Isopropyl alcohol is stored properly in blue 55 gallon drums equipped with a hand pumps for use in cleaning electrical contacts.

Findings:

None.

Recommendations:

None.