

TENTATIVE & PRELIMINARY
For Discussion Purposes Only

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FINAL AUDIT REPORT
FOR THE
SOUTHERN CALIFORNIA
RAPID TRANSIT DISTRICT

* * * * *
NOVEMBER 4, 1987
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RAIL SAFETY AUDIT PROGRAM
SPONSORED BY THE
RAIL SAFETY REVIEW BOARD

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AMERICAN PUBLIC TRANSIT ASSOCIATION
WASHINGTON, DC

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SYSTEMS & CONSTRUCTION SAFETY,

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ITEM # 200
FILE # _____

FOREWORD

In October of 1986, the Rail Safety Review Board (RSRB) of the American Public Transit Association (APTA), on the recommendation of the RSRB's Task Force on Safety Accreditation, initiated the Rail Safety Audit Program (RSAP). During the first phase of the RSAP, a pilot program of six, high level, formal safety audits will be conducted at six volunteer transit systems over the ensuing eighteen months. Upon completion of the pilot program, APTA staff will collaborate with the auditors and participants in the pilot audits to produce a report to the RSRB which will recommend a course of action on rail safety accreditation.

The report to the RSRB will take into consideration whether the transit industry should institute a safety accreditation program and, if so, how the Rail Safety Audit Program can be modified to accommodate such an accreditation program. If an accreditation program is recommended as the subsequent step for the RSAP, the report will contain proposals on how the industry can support this program, through APTA, in terms of staffing, costs, and liability considerations.

This report represents the findings of one of these pilot audits. As such, there were several purposes for conducting this audit. One of these purposes was to establish a baseline for the transit system being audited so that it can develop goals for safety program implementation and attain these goals prior to the next audit of this transit system. It is presently anticipated that, should this program continue, the audit cycle will be two years for each participating transit system.

As the process for safety audits is also still in the developmental stages, another purpose of this pilot audit is for the audit team to develop and make modifications to procedures. At the end of the pilot program, a format and procedure manual will be finalized for use in any ensuing program. At the present time, all procedures are preliminary and subject to change when necessary. Of course, the primary purpose for any audit conducted under this program is to provide the audited transit system with a report on the status of its system safety program.

While this audit and audit report are in fact expected to provide a valuable service to the audited transit system, anyone reviewing this document should take into consideration the aforementioned conditions in terms of the developmental nature of the Rail Safety Audit Program. This audit report is intended to be exclusively for the use and purposes of the transit system audited; any conclusions reached should be done so only by that transit system, after full review and evaluation of the contents of this report.

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RAIL SAFETY AUDIT PROGRAM

DESCRIPTION

Audit Process

The Rail Safety Audit Program is designed to provide a transit system with an evaluation of how well its own System Safety Program Plan has been implemented. In order to qualify for an audit under the pilot program of rail safety audits, a participating transit system must develop and implement a System Safety Program in accordance with the format and provisions contained in the APTA document entitled, *A Manual for the Development of Rail Transit System Safety Program Plans*. The Program Plan document must be submitted to APTA for review prior to scheduling of an audit. Once the Program Plan has been approved for conformance with this document, an audit is scheduled and a team of three auditors is assembled. The APTA Director, Safety and Program Development serves as the audit team leader and the other two auditors are selected from among those who have participated in the APTA Auditors' Training Seminar.

An audit plan is then prepared by the audit team leader. The audit plan consists of a series of check lists containing check list items grouped into categories of similar information such as sections or subsections of the System Safety Program Plan. The check list items, each of which is designated with a unique code number, are developed directly from the System Safety Program Plan, or in some cases, as interpretations of how Program Plan provisions must be carried out.

The check list items are then entered onto the audit forms to produce the Preliminary Check List (PCL). The forms will be described in a subsequent section. The PCL is then forwarded to the audited transit system for the purpose of determining which members of its staff and what documentation will be needed to verify implementation and compliance by the transit system with its System Safety Program provisions.

Upon arrival at the audit location, the audit team will meet to review the audit check list and make assignments as to which auditor will be primarily responsible for each check list form in the PCL. The subject matter or complexity of some subject areas may make it necessary to assign more than one auditor as primarily responsible for some check list forms. The audit team then meets with the transit system staff involved in the audit to develop the detailed schedule for conducting the audit.

The information required for completion of the PCL must be obtained from interviews of responsible staff, direct examination of required documentation, inspection of physical facilities, and/or observation of processes described in the System Safety Program Plan. It is once again noted that the purpose for the audit is to evaluate the transit system's level of compliance with its own prescribed System Safety Program, not a physical audit of the transit system's facilities or practices.

Audit Forms and Procedures

There are two standard audit forms used in the audit process:

1. The check list form (APTA RSAP form 87-1) contains the check list items which will be audited and the ranking of the level of implementation of each audit item as determined by the audit team.
2. The supplemental form (APTA RSAP form 87-2) contains an explanation and recommendations for any check list item found in need of improvement or to provide narrative detail on any check list item which the audit team determines needs comment.

Each page of the **Check List Form** contains information pertaining to a specific system safety principle or section of the System Safety Program Plan. This principle is described at the top of the form, and a reference to the section of the audited transit system's Program Plan where it can be found is provided. The check list form then contains an entry space for each check list item which will be examined relative to that principle or plan section. The form control number and the check list item numbers are unique numbers used to code both the respective audit and individual audit items. The form control number and the auditor/auditors responsible for that respective check list form are shown in the control block in the top right corner of the form.

There are three numbered columns at the right of the form used to indicate the rating for level of implementation of each check list item, as determined by the audit team. The column definitions for this purpose are shown at the bottom of the form. An X in column one indicates that the respective check list item has been implemented satisfactorily according to Program Plan requirements and/or System Safety principles.

An X in column two indicates the audit team feels the implementation level of that respective check list item does not meet the requirements set out in the Program Plan, or for some specific reason can be improved. It should be noted that this column does not necessarily mean a particular check list item is not being accomplished. It may mean the audit team feels the transit system's own requirements could be better served by implementation of certain improvements in this area, as recommended on the Supplemental Form (which will be described subsequently). Whenever a check list item is marked in column two, a supplemental form bearing the same number as that respective check list item must be completed by a member of the audit team.

Column three is used for check list items which, for certain reasons, could not be rated. An X in column three requires either comments in the REMARKS column or completion of a Supplemental Form to describe the reason for the mark in the respective column. A reference number for the respective Supplemental Form will be entered in the remarks column for a particular audit item whenever a Supplemental Form is prepared. It is again pointed out that the primary reason for conduct of an audit is to provide information to the audited system as to the implementation level of its own System Safety Program Plan. For this reason, interpretation of these ratings can only be done by the system being audited, especially for check list items marked in columns two and three.

As described, the **Supplemental Form** is used to provide information on any check list items rated by the audit team as needing improvement. It is numerically coded to the respective check list item it describes (with number referenced in the remarks column of the Check List Form), and provides for the same control information in the control block in the top right corner of the form. There are three sections provided for narrative, descriptive information.

The first section provides information on the status or condition of the respective Program Plan or System Safety Principle, as observed by the audit team. The second section provides information on the effect such condition might have on the overall safety program of the transit system, or other specific comments the audit team feels necessary. The third section provides a recommended course of action, if necessary. This course of action in the case of a check list item needing improvement would indicate what should be accomplished in order to meet requirements for this item on the next audit.

The audit team provides whatever information it feels necessary on the supplemental form. Accordingly, all three sections are not necessarily completed on all Supplemental Forms. The audit team may also wish to make comments on items which meet requirements but could be modified by the transit system to improve its System Safety efforts. Additionally, the audit team may use Supplemental Forms to describe items of particular merit which deserve recognition.

While a specific auditor is assigned as primarily responsible for each check list form and subsequent supplemental forms, prior to completing the field audit the audit team reviews each check list form and reaches consensus on each check list item before finalizing the rating of each item. The check list items on the original PCL's provided to each auditor are then marked with a unique, indelible symbol by each auditor. These original forms must be submitted by each auditor upon completion of respective assignments for inclusion in the APTA files for the respective audit.

APTA staff then uses the submitted PCL's and draft Supplemental Forms prepared by the audit team to develop the **Final Check List (FCL)**, including the appropriate Supplemental Forms. The FCL is then reviewed with the staff of the audited system. If any question as to a particular item rating arises, the audited system can produce additional evidence of compliance or provide further explanation of existing documentation to APTA staff. If any change in rating is determined to be appropriate, APTA staff will verify such changes in rating with the audit team. Proper notation of such changes will be entered onto the file copies of the respective PCL. APTA staff then prepares summary remarks on the audit and completes the **Final Audit Report (FAR)**. The Final Audit Report is then submitted to the audited transit system for its own use. Any other distribution of the Final Audit Report must be done by the audited transit system. APTA will, however, provide copies to the audit team and for use by the Rail Safety Review Board in the conduct of RSRB business.

9/87/RSAP/dzi

TENTATIVE & PRELIMINARY
For Discussion Purposes Only

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL: 8802-FCL.01		8/4-6/87	
1. SYSTEM SAFETY PROGRAM MANAGEMENT REF: 1.0, 2.0			AUDITOR: (TEAM)		
			PAGE 1 OF 38		
ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
1.1	SAFETY POLICY CLEARLY DEFINED & DISSEMINATED	X			
1.2	SAFETY PROGRAM PLAN DISTRIBUTED & IMPLEMENTED	X			
1.3	SAFETY RESPONSIBILITY CLEARLY DESIGNATED (PERSON/DEPARTMENT)	X			SF 1.3
1.4	CLEAR IDENTIFICATION OF MANAGEMENT ROLES IN SAFETY	X			
1.5	PROCESS IDENTIFIED FOR MEASURING EFFECTIVENESS OF SYSTEM SAFETY PROGRAM			X	SF 1.5
1.6	IDENTIFICATION OF SAFETY-RELATED INTERDEPARTMENTAL INTERFACES	X			
1.7	DESCRIPTION & DELEGATION OF AUTHORITY FOR SAFETY PROGRAM IMPLEMENTATION	X			
1.8	DESCRIPTION OF SAFETY-RELATED RESPONSIBILITIES AND DUTIES	X			
1.9	ADEQUATE RESOURCES DEVOTED TO SAFETY PROGRAM IMPLEMENTATION	X			
1.10	PROCESS IN PLACE WITH ADEQUATE RESOURCES ASSIGNED FOR AUDITING ALL UNITS WITH			X	SF 1.10
----	SYSTEM SAFETY RESPONSIBILITIES	--	--	--	--

COLUMN DEFINITIONS:
 1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
 3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL: 8802-CL.01	8/4-6/87
ITEM: SYSTEM SAFETY PROGRAM MANAGEMENT		SF # 1.3	PAGE 2 OF 38
		AUDITOR (TEAM)	
STATUS/CONDITION	<p>THE SCRTD SYSTEM SAFETY PROGRAM IS IN EFFECT AND UNDER CONTROL. THERE ARE, HOWEVER, REORGANIZATION PLANS UNDER WAY WHICH WILL AFFECT THE SAFETY UNITS WITHIN THE SCRTD STRUCTURE. ONE OF THESE IS THE PENDING MERGER OF THE SCRTD AND THE LACTC. THE OTHER IS THE RECOMMENDED REORGANIZATION AND EXPANSION OF THE SAFETY UNIT WITHIN THE SCRTD ENGINEERING AND DEVELOPMENT FUNCTION. BOTH OF THESE CHANGES WILL HAVE AN AFFECT ON THE SYSTEM SAFETY FUNCTION WITHIN THE PRESENT SCRTD STRUCTURE.</p>		
EFFECT/COMMENTS	<p>THE POTENTIAL IMPACT OF THESE CHANGES INCLUDE POSSIBLE DELAY IN IMPLEMENTATION. AT THE PRESENT STAGE OF DEVELOPMENT, THE PACE OF THE DAY TO DAY PROJECT SCHEDULE IS INCREASING AND THE WORK AT HAND IS BECOMING MORE COMPLEX. THE PROJECT CANNOT AFFORD ANY DELAYS OR SLOWDOWNS IN SYSTEM SAFETY EFFORTS. CER-SYSTEM SAFETY ELEMENTS, I.E. CONFIGURATION MANAGEMENT, CAN BE SIGNIFICANTLY DELAYED IF NOT FOLLOWED FROM THE OUTSET. CATCH-UP BECOMES EXTREMELY DIFFICULT, IF NOT IMPOSSIBLE ON SUCH PROJECT ELEMENTS.</p>		
RECOMMENDATION	<p>THE SCRTD SHOULD DO EVERYTHING POSSIBLE TO IMPLEMENT THE PREVIOUSLY APPROVED CHANGES IN THE SYSTEM SAFETY UNIT AS QUICKLY AS POSSIBLE. IN ADDITION, ANY STEPS POSSIBLE TO AVOID DELAY IN IMPLEMENTATION OF SYSTEM SAFETY PROGRAM ELEMENTS WHICH MIGHT BE CAUSED BY THE MERGER WITH LACTC SHOULD BE TAKEN. IN ORDER FOR THE SYSTEM SAFETY PROGRAM TO HAVE THE DESIRED AND NECESSARY IMPACT ON THE METRO RAIL PROJECT, ALL PROGRAM ELEMENTS NEED TO BE IN PLACE AND FUNCTIONING FROM THE BEGINNING OF THE PROJECT AND MUST CONTINUE UNINTERRUPTED THROUGHOUT THE PROJECT LIFE CYCLE.</p>		

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.01	8/4-6/87
ITEM: SYSTEM SAFETY PROGRAM MANAGEMENT		SF # 1.5	PAGE 3 OF 38
AUDITOR: (TEAM)			
STATUS/CONDITION	<p>THE METRO RAIL PROJECT IS STILL IN THE EARLY STAGES OF DEVELOPMENT AND SYSTEM SAFETY PROGRAM IMPLEMENTATION IS JUST NOW BEGINNING.</p>		
EFFECT/COMMENTS	<p>WHILE DELAYS IN IMPLEMENTATION OF KEY SYSTEM SAFETY PROGRAM ELEMENTS CAN BE COSTLY AND SOMETIMES IMPOSSIBLE TO ADEQUATELY CORRECT, THE PRESENT SCHEDULE FOR THE METRORAIL PROJECT HAS NOT YET GOTTEN TO THAT POINT.</p>		
RECOMMENDATION	<p>THE SCRTD IS URGED TO MONITOR PROJECT SCHEDULING CLOSELY TO ENSURE NO SYSTEM SAFETY PROGRAM ELEMENTS ARE ALLOWED TO FALL BEHIND SCHEDULE.</p>		

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.01	8/4-6/87
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ITEM: SYSTEM SAFETY PROGRAM MANAGEMENT	SF # 1.10	PAGE 4 OF 38
	AUDITOR: (TEAM)	

STATUS/CONDITION	THE METRO RAIL PROJECT IS STILL IN ITS EARLY STAGES AND AS SUCH NO CRITICAL SCHEDULING ON AUDITING OR SHORTAGE OF RESOURCES CAN BE ADEQUATELY ASSESSED.
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EFFECT/COMMENTS	AT THIS TIME, PROJECT IMPACT CANNOT BE ASSESSED, HOWEVER, PROJECT SCHEDULE WILL SOON ACCELERATE TO FULL PACE AND SYSTEM SAFETY PROGRAM ITEMS WILL BECOME CRITICAL.
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RECOMMENDATION	THE SCR TD SHOULD MONITOR RSOURCES CLOSELY TO ENSURE THAT PROPER AUDITING CAPABILITIES EXIST AS SOON AS PROJECT SCHEDULES WARRANT SUCH AUDITS.
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APTA RAIL SAFETY AUDIT PROGRAM		CONTROL: 8802-FCL.02		8/4-6/87	
2. MANAGEMENT & IMPLEMENTATION OF SAFETY & SYSTEMS ASSURANCE GROUP RESPONSIBILITIES REF: 2.1			AUDITOR: (TEAM)		
			PAGE 5 OF 38		
ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
2.1	ESTABLISH SYSTEM SAFETY & SECURITY GOALS & STANDARDS	X			
2.2	OVERSEE, GUIDE, & SUPPORT ACTIVITIES REQUIRED TO EXECUTE THE SYSTEM SAFETY &	X			
----	SECURITY PROGRAM THROUGHOUT ALL PHASES OF THE METRO RAIL PROJECT	--	--	--	--
2.3	ANALYZE PROCEDURES, RULES, & PRACTICES TO ENSURE ADEQUATE HAZARD CONTROL			X	TOO EARLY IN PROGRAM
2.4	PARTICIPATE IN DESIGN REVIEWS & PLANNING SESSIONS	X			
2.5	ASSESS SAFETY & SECURITY INFORMATION FROM OTHER PROPERTIES	X			
2.6	AUDIT DESIGN CHANGES AND CONSTRUCTION/ PROCUREMENT ACTIVITIES TO ENSURE THAT THE	X			
----	SAFETY AND/OR SECURITY REQUIREMENTS OF THE METRO RAIL SYSTEM ARE BEING MAINTAINED	--	--	--	--
2.7	DEVELOP EMERGENCY PREPAREDNESS PLANS & PROCEDURES FOR REVENUE SERVICE			X	SF 2.7
COLUMN DEFINITIONS: 1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM) 3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)					

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.02	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY & SYSTEMS ASSURANCE GROUP RESPONSIBILITIES		SF # 2.7	PAGE 6 OF 33
		AUOITOR: (TEAM)	
STATUS/CONDITION	<p>THE METRO RAIL SYSTEM IS SEVERAL YEARS AWAY FROM REVENUE SERVICE AND THEREFORE SPECIFIC PLANS AND PROCEDURES HAVE NOT BEEN DEVELOPED.</p>		
EFFECT/COMMENTS	<p>ALTHOUGH THIS ELEMENT IS NOT AUDITABLE AT THIS TIME WORK HAS BEGUN ON THE FORMALIZATION OF A PLAN AND PROCEDURES. THIS IS EVIDENCED BY ACTIVITIES OF THE FIRE/LIFE SAFETY COMMITTEE AND OPERATIONS AND MAINTENANCE COMMITTEES.</p>		
RECOMMENDATION	<p></p>		

APTA RAIL SAFETY AUDIT PROGRAM

CONTROL: 8802-FCL.03

8/4-6/87

3. MANAGEMENT & IMPLEMENTATION OF
CONSTRUCTION SAFETY & SECURITY PROGRAM
REF: 2.1

AUDITOR: SAPORTA

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ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
3.1	MONITOR THE EFFECTIVENESS OF THE CONSTRUCTION SAFETY & SECURITY PROGRAM		X		SF 3.2
3.2	OVERSEE EMERGENCY PREPAREDNESS ACTIVITIES DURING CONSTRUCTION			X	SF 3.2
3.3	AUDIT INSPECTION RECORDS & REPORTS FOR COMPLIANCE WITH SCRTD REGULATIONS AND		X		SF 3.3
	REQUIREMENTS				

COLUMN DEFINITIONS:
 1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
 3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL 8802-CL.03	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF CONSTRUCTION SAFETY & SECURITY PROGRAM		SF # 3.1	PAGE 8 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION	<p>CONSTRUCTION ON THE METRO RAIL PROJECT COMMENCED APPROXIMATELY 8 MONTHS PRIOR TO THE AUDIT, WITH ONE SAFETY ENGINEER ASSIGNED TO MONITOR CONSTRUCTION ACTIVITIES.</p>		
EFFECT/COMMENTS	<p>ALTHOUGH THE RTD ENGINEER ASSIGNED TO THE CONSTRUCTION PROJECT TO MONITOR SAFETY ACTIVITIES ATTENDS MONTHLY SAFETY MEETINGS, THERE APPEARS TO BE NO SPECIFIC MONITORING OF ACTIVITIES.</p>		
RECOMMENDATION	<p>THE ASSIGNED ENGINEER SHOULD PERIODICALLY MONITOR SAFETY ACTIVITIES OF THE CONSTRUCTION MANAGEMENT TEAM. MONITORING EFFORTS, SHOULD INCLUDE SITE INSPECTIONS TO ASSIST EFFECTIVENESS OF PREVIOUS INSPECTIONS AND ON-GOING HAZARD CONTROL ACTIVITIES, REVIEW OF ACCIDENT ANALYSIS (WORKERS CORP AND LIABILITY), INJURY REPORTS, AND OTHER DOCUMENTS TO SUPPORT THE CONDUCT OF REQUIRED SAFETY ACTIVITY.</p>		

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.03	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF CONSTRUCTION SAFETY & SECURITY PROGRAM		SF # 3.2	PAGE 9 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION		TOO EARLY TO AUDIT. AN EMERGENCY PREPAREDNESS PLAN HAS BEEN DEVELOPED; HOWEVER, THE PLAN PRIORITY ADDRESSES TUNNEL EMERGENCIES.	
EFFECT/COMMENTS		THERE IS NO EVIDENCE WHICH INDICATES EMPLOYEES HAVE RECEIVED INSTRUCTION IN REPORTING INJURIES TO THE PUBLIC OR OTHER EMERGENCIES.	
RECOMMENDATION		AS PART OF THE ORIENTATION PROGRAM, EMPLOYEES SHOULD RECEIVE INSTRUCTION IN THE REPORTING OF INJURIES AND HANDLING OF EMERGENCIES.	

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.03	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF CONSTRUCTION SAFETY & SECURITY PROGRAM		SF # 3.3	PAGE 10 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION	THERE IS NO EVIDENCE OF THE AUDITING OF CONSTRUCTION SAFETY RECORDS.		
EFFECT/COMMENTS			
RECOMMENDATION	THE RTD SAFETY EMERGENCIES ASSIGNED TO MONITOR CONSTRUCTION SAFETY ACTIVITY SHOULD MONITOR INSPECTION RECORDS, ORIENTATION RECORDS, AND OTHER DOCUMENTS WHICH SUPPORT CONSTRUCTION SAFETY ACTIVITY AND ITS EFFECTIVENESS. IT IS SUGGESTED THAT RTD BE ON THE DISTRIBUTION FOR INSPECTION REPORTS, INJURY REPORTS, AND OTHER DOCUMENTS.		

APTA RAIL SAFETY AUDIT PROGRAM

CONTROL: 8802-FCL.04

8/4-6/87

4. MANAGEMENT & IMPLEMENTATION OF SAFETY
ACTIVITIES OF GENERAL CONSULTANT
REF: 2.2

AUDITOR: Lock

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ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
4.1	DEVELOP & PUBLISH SYSTEMWIDE DESIGN CRITERIA FOR FIRE/LIFE SAFETY, SYSTEM SAFETY,	X			
----	SECURITY, AND SYSTEM ASSURANCE	--	--	--	--
4.2	REVIEW ALL DESIGN DOCUMENTS FROM A SAFETY PERSPECTIVE	X			
4.3	PREPARE SPECIAL STUDIES TO EVALUATE ALTERNATIVE DESIGNS FROM A SAFETY PERSPECTIVE	X			
4.4	PREPARE DETAILED HAZARD ANALYSES TO SUPPORT DESIGN ENGINEERS	X			SF 4.4
4.5	EVALUATE ALL PROPOSED DESIGN CHANGES WITH RESPECT TO SAFETY	X			
4.6	PARTICIPATE IN THE SAFETY CERTIFICATION PROGRAM IN AREAS RELATED TO DESIGN	X			
4.7	REVIEW ALL SAFETY-RELATED SOP'S FOR CONSISTENCY WITH DESIGN REQUIREMENTS			X	TOO EARLY IN PROGRAM

COLUMN DEFINITIONS:

1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.04	8/4-6/87
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ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF GENERAL CONSULTANT	SF # 4.4	PAGE 12 OF 38
	AUDITOR: Lock	

STATUS/CONDITION	<p>HAZARD ANALYSES SUCH AS A PRELIMINARY HAZARD ANALYSIS (PHA), INTERFACE HAZARD ANALYSIS (IHA) AND SUBSYSTEMS HAZARD ANALYSIS (SSHA) WERE UNDERTAKEN AND DOCUMENTED PREVIOUSLY BY METRO RAIL TRANSIT CONSULTANTS (MRTC). OTHER HAZARD ANALYSES SUCH AS THE OPERATING HAZARD ANALYSIS AND INDIVIDUAL EQUIPMENT ANALYSES SUCH AS THE PASSENGER VEHICLE (A650) AND TRAIN CONTROL (A620) REMAIN TO BE CONDUCTED. A PROCEDURE ENTITLED "GUIDELINES FOR THE PREPARATION OF SAFETY & SYSTEM ASSURANCE ANALYSES" (SCRTD 5-001) HAS BEEN PREPARED AND IS TO BE USED BY EACH OF THE DIFFERENT ORGANIZATIONS INVOLVED IN THE PROGRAM. A NUMBER OF PLANS & PROGRAMS PERTAINING TO SYSTEM SAFETY HAVE BEEN DETAILED BY SCRTD, MRTC & BAH. (CONTINUED OF NEXT FORM)</p>
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EFFECT/COMMENTS	<p>WITHOUT A COMPREHENSIVE PROGRAM SCHEDULE AND STATUS REPORTING MECHANISM A LACK OF MANAGEMENT VISIBILITY OF THE SYSTEM PROGRAM EXISTS. SINCE MOS-1 HAS NOW MOVED FROM FINAL DESIGN INTO PROCUREMENT/CONSTRUCTION AND ADDITIONAL PARTIES (CONTRACTORS) WILL NOW PARTICIPATE IN THE PROGRAM, IT IS NECESSARY THAT MANAGEMENT CONTROL OF THE OVERALL PROGRAM BE STRENGTHENED.</p>
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RECOMMENDATION	<p>DEVELOP A COMPREHENSIVE SYSTEM SAFETY PROGRAM SCHEDULE AND STATUS REPORTING MECHANISM. IDENTIFY MILESTONES FOR PROGRAM REVIEWS. INCLUDE ALL PARTICIPANTS IN THE PROGRAM (SCRTD, MRTC, BAH, CONTRACTORS, SPECIALTY CONSULTANTS, ETC.) AND IDENTIFY THEIR ROLES & RESPONSIBILITIES.</p>
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.04	8/4-6/87
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ITEM: (CONTINUATION OF SF 4.4)	SF # 4.4A	PAGE 13 OF 38
	AUDITOR: Lock	

STATUS/CONDITION	EXAMPLES OF THIS EFFORT ARE NOTED BELOW: <ul style="list-style-type: none">• HAZARD RESOLUTION PROGRAM• SYSTEM SAFETY & SECURITY PROGRAM PLAN• SYSTEM CERTIFICATION PLAN <p>HOWEVER, A COMPREHENSIVE SCHEDULE IDENTIFYING PROGRAM MILESTONES, PARTICIPANTS, RESPONSIBILITIES, ETC. HAS NOT BEEN PREPARED, NOR IS IT EVIDENT THAT ANY OF THE WORK PREVIOUSLY PERFORMED (PHA, IHA, SSHA) HAS BEEN UTILIZED.</p>
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EFFECT/COMMENTS	
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RECOMMENDATION	
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.05	8/4-6/87
5. MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF SE&A CONSULTANT REF: 2.2	AUDITOR: LOCK/SAPORTA	
	PAGE 14 OF 38	

ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
5.1	PREPARE SYSTEM SAFETY PROGRAM PLANS AND MANAGEMENT PROCEDURES	X			
5.2	PREPARE SYSTEM-LEVEL HAZARD ANALYSES	X			SF 5.2
5.3	ASSIST SCRTD WITH MANAGEMENT OF THE SAFETY CERTIFICATION PROGRAM	X			
5.4	PROVIDE INDEPENDENT SAFETY REVIEWS OF DESIGN DOCUMENTS & SAFETY ANALYSES	X			
5.5	ASSIST SCRTD IN PREPARATION OF REVENUE SERVICE RULES & EMERGENCY PROCEDURES			X	TOO EARLY ON PROGRAM

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.05	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF SE&A CONSULTANT		SF # 5.2	PAGE 15 OF 38
		AUDITOR: Lock	
STATUS/CONDITION	<p>A NUMBER OF HAZARDS ANALYSES HAVE PREVIOUSLY BEEN PREPARED. THEY INCLUDE A PRELIMINARY HAZARDS ANALYSIS AND INTERFACE HAZARDS ANALYSIS BY MRTC. ALSO, AN OPERATING HAZARDS ANALYSIS IS SCHEDULED TO BE CONDUCTED IN THE FUTURE. HOWEVER, IT WAS NOT DEMONSTRATED DURING THE AUDIT THAT THE SYSTEM LEVEL SAFETY ANALYSES CONDUCTED TO DATE HAVE BEEN UTILIZED. IN FACT, SOME OF THEM ARE SEVERAL YEARS OLD AND IT APPEARS AS THOUGH THEY HAVE LAID DORMANT SINCE THEIR CONDUCT. THIS MAY BE DUE TO A HIATUS IN THE PROGRAM.</p>		
EFFECT/COMMENTS	<p>THE STEPS INVOLVED IN THE HAZARDS ANALYSIS PROCESS BASICALLY CONSIST OF HAZARD IDENTIFICATION, CLASSIFICATION AND RESOLUTION. UNLESS HAZARD RESOLUTION IS UNDERTAKEN THE ANALYSIS IS REALLY NON-PRODUCTIVE. THIS HAS BEEN RECOGNIZED BY THE SCRTD AND A HAZARD RESOLUTION PLAN HAS BEEN PREPARED. IT NOW HAS TO BE ACTIVATED.</p>		
RECOMMENDATION	<p>INCLUDE THE SYSTEM LEVEL HAZARDS ANALYSES IN THE HAZARD RESOLUTION PROGRAM. IDENTIFY THOSE SYSTEM LEVEL HAZARDS WHICH ARE GENERIC IN NATURE AND COMMON TO HEAVY RAIL TRANSIT SYSTEMS. IT SHOULD BE POSSIBLE TO REDUCE THE RESOURCES (MANPOWER) APPLIED TO THIS WORK IN THE FUTURE ON OTHER LINE SEGMENTS (MOS'S) AND POSSIBLY ON OTHER RAIL PROGRAMS BY ACKNOWLEDGING GENERIC SYSTEMS HAZARDS AND ACCEPTING THEIR MEANS OF RESOLUTION RATHER THAN REPEATING IN THEIR ENTIRETY THESE ANALYSES.</p>		

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.06	8/4-6/87
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6. MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF CM CONSULTANT REF: 2.2	AUDITOR: SAPORTA
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ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
6.1	PREPARE CONSTRUCTION SAFETY PLANS & PROCEDURES	X			
6.2	MANAGE & ENFORCE CONSTRUCTION SAFETY & SECURITY PROGRAMS		X		SF 6.2
6.3	REVIEW SYSTEM SAFETY ANALYSES & DESIGN DOCUMENTS	X			
6.4	ASSESS LOSS CONTROL ACTIONS IDENTIFIED BY DISTRICT INSURANCE ADMINISTRATOR			X	SF 6.4
6.5	ENSURE DEVELOPMENT & IMPLEMENTATION OF CONSTRUCTION EMERGENCY RESPONSE PROCEDURES			X	SF 6.5
6.6	PROVIDE SAFETY SUPPORT FOR PRE-CONSTRUCTION SURVEYS	X			
6.7	ENSURE PERFORMANCE OF CONSTRUCTION SITE INSPECTIONS (I.E. OSHA, EPA, SAFETY)		X		SF 6.7
6.8	PARTICIPATE IN SAFETY CERTIFICATION PROGRAM; PROVIDE NECESSARY DOCUMENTATION	X			
6.9	REVIEW RULES & SOP'S FOR CONSISTENCY WITH FINAL SYSTEM DESIGN			X	TOO EARLY IN PROGRAM

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASONS OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.06	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF CM CONSULTANT		SF # 6.2	PAGE 17 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION	<p>SAFETY RECORDS INDICATE PERIODIC INSPECTION OF WORKSITES BY CM CONSULTANT. HOWEVER, INSPECTIONS APPEAR NOT TO INCLUDE ALL FACETS OF CONSTRUCTION SAFETY ACTIVITY. SUCH DETAILED INSPECTIONS SHOULD OCCUR TO ASSURE COMPLIANCE.</p>		
EFFECT/COMMENTS	<p>ALTHOUGH THE PROJECT HAS BEEN CONTINUING FOR SOME MONTHS, THERE IS NO EVIDENCE OF A DETAILED INSPECTION.</p>		
RECOMMENDATION	<p>INSPECTIONS BY CM CONSULTANT SHOULD INCLUDE COMPLIANCE WITH ALL FACETS OF THE CONSTRUCTION SAFETY PROGRAM. PARTICULAR ATTENTION SHOULD BE PAID TO EMPLOYEE ORIENTATION, EMERGENCY PREPAREDNESS, AND CONTROL OF HAZARDS IDENTIFIED FOR UPCOMING WORK ACTIVITY.</p>		

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.06	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF CM CONSULTANT		SF # 6.4	PAGE 18 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION		TOO EARLY TO AUDIT. NO REPORTS HAVE BEEN GENERATED TO DATE.	
EFFECT/COMMENTS			
RECOMMENDATION		ALTHOUGH THE PROJECT HAS GENERATED TOO FEW ACCIDENTS TO WARRANT A FULL SCALE ANALYSIS, PLANNING SHOULD OCCUR NOW FOR THE CONTENT AND TYPES OF REPORTS TO BE GENERATED.	

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.06	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION OF SAFETY ACTIVITIES OF CM CONSULTANT		SF # 6.5	PAGE 19 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION	EMERGENCY PREPAREDNESS HAS BEEN PREPARED AND DISTRIBUTED TO ALL PRIME CONTRACTORS.		
EFFECT/COMMENTS	THERE IS NO EVIDENCE THAT ORIENTATION HAS STARTED FOR EMERGENCY PREPAREDNESS ACTIVITIES.		
RECOMMENDATION	ALTHOUGH TUNNELING ACTIVITY IS TWO TO THREE MONTHS AWAY, ORIENTATION OF RESCUE PERSONNEL AND OTHER KEY PERSONNEL SHOULD BEGIN NOW. ADDITIONALLY PREPAREDNESS TRAINING SHOULD INVOLVE ALL CONSTRUCTION PERSONNEL TO ENSURE ALL CONSTRUCTION PERSONNEL TO ENSURE A PROPER RESPONSE IN THE EVENT OF FIRE OR MEDICAL EMERGENCY. PERIODIC SKILLS SHOULD BE CONDUCTED TO MEASURE THE LEVEL OF PREPAREDNESS FOR TUNNEL EMERGENCIES.		

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.06	8/4-6/87
ITEM: MANAGEMENT & IMPLEMENTATION ACTIVITIES OF CM CONSULTANT		SF # 6.7	PAGE 20 OF 38
		AUDITOR: SAPORTA	
STATUS/CONDITION	<p>THE CM CONSULTANT PRESENTLY CONDUCTS PERIODIC INSPECTIONS FREQUENTLY. HOWEVER, THE INSPECTIONS DO NOT APPEAR TO BE COMPREHENSIVE NOR DETAILED.</p>		
EFFECT/COMMENTS	<p>WITH THE PROJECT IN PLACE FOR SEVERAL MONTHS SUCH INSPECTIONS WOULD BE EXPECTED BY NOW.</p>		
RECOMMENDATION	<p>THE CM CONSULTANT SHOULD CONDUCT COMPREHENSIVE SAFETY INSPECTIONS ON A PERIODIC BASIS. THESE INSPECTIONS SHOULD INCLUDE REVIEW OF TRAINING REQUIREMENTS (ORIENTATION, EMERGENCY PREPAREDNESS, ETC.), AS WELL AS, OF PHYSICAL REQUIREMENTS.</p>		

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.08	8/4-6-87
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ITEM: SYSTEM SAFETY PROGRAM DEVELOPMENT	SF # 8.3	PAGE 23 OF 38
	AUDITOR: DZINSKI	

STATUS/CONDITION	THE METRO RAIL OPERATING UNIT IS NOT YET IN PLACE. IN FACT DECISIONS HAVE NOT YET BEEN MADE ON THE EXACT NATURE OF THE OPERATING AGENCY WHICH WILL BE CHARGED WITH METRO RAIL OPERATIONS. SCR TD DOES HAVE STAFF ON BOARD RESPONSIBLE FOR MONITORING POSSIBLE OPERATIONAL DECISIONS.
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EFFECT/COMMENTS	NO EFFECT AT THIS TIME.
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RECOMMENDATION	WHILE TIME IS NOT YET CRITICAL ON MOST OPERATING DECISIONS, THE SCR TD IS URGED TO MONITOR THIS SITUATION CLOSELY AND ESTABLISH PROPER COORDINATION WITH THE OPERATIONS UNIT AS SOON AS IT IS IDENTIFIED.
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.09	8/4-6/87
9. SAFETY CERTIFICATION PROGRAM REF: 3.0		AUDITOR: (TEAM)
		PAGE 24 OF 38

ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
9.1	ENSURE IMPLEMENTATION & DOCUMENTATION OF SAFETY CERTIFICATION PROGRAM AS WELL AS	X			
----	DELEGATION OF RESPONSIBILITIES & ASSIGNMENT OF RESOURCES FOR ACCOMPLISHMENT	--	--	--	--
9.2	VERIFY SAFETY-RELATED DESIGN CRITERIA ARE PROPERLY REFLECTED IN PROCUREMENT &	X			
----	CONSTRUCTION SPECS & DIRECTIVE DRAWINGS	--	--	--	--
9.3	VERIFY SAFETY-RELATED REQUIREMENTS IN SPECS ARE INCORPORATED INTO FINAL PRODUCT			X	SF 9.3/4
9.4	TESTS ARE CONDUCTED TO VERIFY THE ABILITY OF EQUIPMENT/PERSONNEL TO FUNCTION SAFELY			X	SF 9.3/4
9.5	OPS, MAINT, & SAFETY PLANS, PROCEDURES, & TRAINING PROGRAMS DEVELOPED, REVIEWED &			X	SF 9.5
----	APPROVED PRIOR TO REVENUE SERVICE	--	--	--	--
9.6	VERIFY SAFETY CERTIFICATION REVIEW TEAM ACCEPTANCE OF REFERENCED RESPONSIBILITIES	X			

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL 09	8/4-6/87
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ITEM: SAFETY CERTIFICATION PROGRAM	SF # 9.3/4	PAGE 25 OF 38
	AUDITOR: (TEAM)	

STATUS/CONDITION	A TEST PROGRAM PLAN HAS BEEN PREPARED AND DOCUMENTED. IT PROVIDES FOR THE TESTING OF RAIL EQUIPMENT AND FACILITIES. HOWEVER, IT IS DIRECTED TO HARDWARE. THE TRAIN CONTROL SYSTEM WILL FEATURE FULL AUTOMATION - AUTOMATIC TRAIN PROTECTION (ATP), AUTOMATIC TRAIN OPERATION (ATO) AND AUTOMATIC TRAIN SUPERVISION (ATS). A TRAIN CONTROL SOFTWARE VERIFICATION PROGRAM IS NOT CALLED FORTH EITHER IN THE TRAIN CONTROL SPECIFICATION OR IN THE SYSTEM TEST PLAN.
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EFFECT/COMMENTS	WITHOUT A TRAIN CONTROL SOFTWARE VERIFICATION PROGRAM, FULL AUTOMATION OF THE TRAIN CONTROL FUNCTION BECOMES SUSPECT - ESPECIALLY WITH RESPECT TO ATS. FROM A SAFETY PERSPECTIVE FOR THE TRAIN CONTROL FUNCTION, BOTH HARDWARE AND SOFTWARE SHOULD BE VERIFIED.
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RECOMMENDATION	INCLUDE A SOFTWARE VERIFICATION PROGRAM FOR TRAIN CONTROL.
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APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.09	8/4-6/87
ITEM: SAFETY CERTIFICATION PROGRAM		SF # 9.5	PAGE 26 OF 38
		AUDITOR: LOCK	
STATUS/CONDITION	<p>A NUMBER OF PLANS, PROCEDURES & TRAINING PROGRAMS ARE CALLED FORTH HERE AND ELSEWHERE IN THE DESIGN DOCUMENTATION. HOWEVER, A CLEAR & STRAIGHT FORWARD IDENTIFICATION OF MANAGEMENT ROLES WITH RESPECT TO MERGING THE PROCEDURES, PERSONNEL, AND EQUIPMENT AND READINGYING THEM FOR REVENUE SERVICE HAS NOT BEEN SET FORTH. THIS TASK ON OTHER EMERGING RAIL PROPERTIES HAS SOMETIMES BEEN REFERRED TO AS RAIL ACTIVATION.</p>		
EFFECT/COMMENTS	<p>READINGYING A HEAVY RAIL SYSTEM FOR REVENUE SERVICE IS A VERY COMPLEX AND TIME CONSUMING PROCESS. CLEAR MANAGEMENT LINES OF AUTHORITY MUST BE ESTABLISHED AND FOLLOWED. WORKING OFF PUNCH LISTS AND ESTABLISHING WORK-AROUNDS ARE AN INESCAPABLE PORTION OF THIS EFFORT AND THEY IMPACT SAFE OPERATIONS GREATLY.</p>		
RECOMMENDATION	<p>INSTITUTE A RAIL ACTIVATION PROGRAM TO READY THE SYSTEM FOR REVENUE SERVICE. DELEGATE FULL AUTHORITY FOR THE CONDUCT OF THE PROGRAM TO ONE INDIVIDUAL - RAIL ACTIVATION DIRECTOR. MAKE HIM SOLELY RESPONSIBLE FOR ALL ASPECTS OF THE PROGRAM.</p>		

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.12	8/4-6/87
12. PROCUREMENT & CONSTRUCTION MONITORING REF: 3.3, 4.0		AUDITOR: (TEAM)
		PAGE 29 OF 38

ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
12.1	VERIFY MONITORING OF CONTRACTOR WORK	X			
12.2	REVIEW PROCESS FOR QUALITY ASSURANCE AUDITS, INSPECTIONS, & TESTS	X			
12.3	VERIFY CONTRACTOR SUBMITTALS OF SSPP'S & REQUIRED SAFETY & RELIABILITY ANALYSES			X	TOO EARLY IN PROGRAM
12.4	VERIFY SCR TD HAZARD IDENTIFICATION & RESOLUTION PROCESS & INCORPORATION OF			X	TOO EARLY IN PROGRAM
----	CONTRACTOR-IDENTIFIED HAZARDS	--	--	--	--
12.5	VERIFY ADEQUATE RESOURCES & AUTHORITY OF SAFETY & SYSTEMS ASSURANCE GROUP TO		X		SF 12.5
----	ENFORCE PROVISIONS QUALITY ASSURANCE PROGRAM	--	--	--	--
12.6	VERIFY SUBMITTALS & TRACKING OF SSHA, IHA, OHA, & FMECA, & COMPILATION OF CCIL			X	TOO EARLY IN PROGRAM
12.7	REVIEW SCR TD TEST PROGRAM PLAN & VERIFY ABILITY & COMMITMENT TO IMPLEMENT			X	SF 12.7
12.8	REVIEW SAFETY-RELATED DESIGN FEATURES OF METRO RAIL PROJECT & VERIFY PROCESS USED	X			
----	BY SCR TD TO ASSURE COMPLIANCE WITH DESIGN REQUIREMENTS & CRITERIA	--	--	--	--

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.12	8/4-6/87
ITEM: PROCUREMENT & CONSTRUCTION MONITORING		SF # 12.5	PAGE 30 OF 38
		AUDITOR: (TEAM)	
STATUS/CONDITION	<p>CONSTRUCTION/PROCUREMENT OF FACILITIES AND EQUIPMENT HAS STARTED AND IS UNDERWAY.</p> <p>SPECIFICATIONS REQUIRE THE CONDUCT OF A QUALITY ASSURANCE PROGRAM.</p>		
EFFECT/COMMENTS	<p>THE SYSTEM ASSURANCE PROGRAM IS MOVING FROM THE FINAL DESIGN PHASE TO CONSTRUCTION/ACQUISITION.</p> <p>IN THE QUALITY ASSURANCE AREA THE WORK REQUIREMENT NOW PERTAINS TO THE START OF VENDOR QA AUDITS, INSPECTIONS & WITNESSING OF TESTS. ADEQUATE RESOURCES (MANPOWER) MUST BE DEVOTED TO THE CONDUCT OF THIS WORK PLUS MANAGEMENT OVERSIGHT.</p>		
RECOMMENDATION	<p>PREPARE A SCHEDULE WITH MILESTONES FOR IMPLEMENTATION OF THE QUALITY ASSURANCE PROGRAM.</p> <p>IDENTIFY THE ROLES OF THE SCRTD, SEA CONSULTANT, CAR CONSULTANT, AND MRTC CONSULTANT IN THE PROGRAM. ASSURE THAT THE SCRTD HAS ADEQUATE RESOURCES TO MANAGE THE PROGRAM SINCE THE RESPONSIBILITY FOR QUALITY ULTIMATELY RESTS WITH THE BUYER.</p>		

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.12	8/4-6/87
ITEM: PROCUREMENT & CONSTRUCTION MONITORING		SF # 12.7	PAGE 31 OF 38
		AUDITOR: (TEAM)	
STATUS/CONDITION	<p>THE PRESENT SAFETY & SYSTEMS ASSURANCE GROUP OF THE SCRTD HAS BEEN ABLE TO KEEP UP WITH THE WORK LOAD TO DATE; HOWEVER, THAT WORK LOAD WILL SOON INCREASE TREMENDOUSLY AS THE PROJECT SCHEDULE ENTERS FULL IMPLEMENTATION. THE PROPOSED SAFETY DEPARTMENT REORGANIZATION AND RELATED STAFF INCREASE IS DESIGNED TO ADDRESS THIS WORK LOAD INCREASE, AS WELL AS NECESSARY REPORTING REQUIREMENTS FOR AN EFFECTIVE SAFETY & SYSTEMS ASSURANCE FUNCTION.</p>		
EFFECT/COMMENTS	<p>NO EFFECT AT THIS TIME.</p>		
RECOMMENDATION	<p>THE SCRTD IS URGED TO IMPLEMENT SAFETY & SYSTEMS ASSURANCE STAFF REORGANIZATION AND FILL BOTH VACANT AND NEW POSITIONS AS SOON AS POSSIBLE TO ASSURE ADEQUATE LEVELS OF STAFF ARE AVAILABLE AND PROPER REPORTING REQUIREMENTS ARE IN PLACE TO HANDLE ANTICIPATED WORK LOADS.</p>		

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.13	8/4-6/87
13. CONSTRUCTION SAFETY REF: 5.0	AUDITOR: SAPORTA	
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ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
13.1	VERIFY DISTRIBUTION & FAMILIARITY WITH CONSTRUCTION SAFETY & SECURITY MANUAL OF	X			
----	ALL PROGRAM PARTICIPANTS	--	--	--	--
13.2	VERIFY IMPLEMENTATION & MANAGEMENT OF CONSTRUCTION SAFETY PROGRAM BY CM		X		SF 13.2
13.3	VERIFY REQUIRED TRAINING OF ALL INVOLVED PERSONNEL IN CONSTRUCTION SAFETY ISSUES		X		SF 13.3
13.4	VERIFY ENFORCEMENT OF USE OF REQUIRED SAFETY EQUIPMENT BY CM	X			
13.5	VERIFY AUDITING & INSPECTION OF CM BY SAFETY & SYSTEM ASSURANCE GROUP		X		SF 13.5

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.13	8/4-6/87
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ITEM: CONSTRUCTION SAFETY	SF # 13.2	PAGE 33 OF 38
	AUDITOR: SAPORTA	

STATUS/CONDITION	PRESENTLY THE ASSIGNMENT FOR CONSTRUCTION SAFETY OVERSIGHT HAS BEEN DIVIDED. IN ADDITION NO FORMAL AUDIT HAS BEEN CONDUCTED.
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EFFECT/COMMENTS	
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RECOMMENDATION	THE SCRTD SHOULD ASSIGN TO AN INDIVIDUAL THE RESPONSIBILITY FOR OVERSEEING CONSTRUCTION SAFETY ACTIVITY. OVERSIGHT ACTIVITY SHOULD INCLUDE REVIEW OF INSPECTION REPORTS, ACCIDENT REPORTS AND ANALYSES, AS WELL AS PERIODIC REVIEW OF SAFETY DOCUMENTS. IT SHOULD BE NOTED THAT THE SCRTD IS IN THE PROCESS OF HIRING A SAFETY MANAGER SPECIFICALLY TO OVERSEE CONSTRUCTION SAFETY ACTIVITIES.
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.13	8/4-6/87
ITEM: CONSTRUCTION SAFETY	SF # 13.3	PAGE 34 OF 38
AUDITOR: SAPORTA		

STATUS/CONDITION	<p>AN INFORMAL AUDIT OF TRAINING ACTIVITY INDICATED THAT RECORDS FOR SUCH ACTIVITY ARE NOT MAINTAINED. ADDITIONALLY NO OUTLINE HAS BEEN PREPARED TO ASSURE THE SAME LEVEL OF TRAINING FOR ALL NEW CONSTRUCTION PERSONNEL.</p>
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EFFECT/COMMENTS	
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RECOMMENDATION	<p>AN OUTLINE WHICH HIGHLIGHTS THE MAIN POINTS TO BE COVERED DURING TRAINING (ORIENTATION, EMERGENCY PREPAREDNESS, ETC., SHOULD BE DEVELOPED. ADDITIONALLY ANY TRAINING CONDUCTED SHOULD BE DOCUMENTED BY SIGNATURE OF THE EMPLOYEE AND THE TRAINER. THE DOCUMENT MAY BE THE OUTLINE ITSELF WITH SIGNATURES ON THE BOTTOM.</p>
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL # 8802-CL.13	8/4-6/87
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ITEM: CONSTRUCTION SAFETY	SF # 13.5	PAGE 35 OF 38
	AUDITOR: SAPORTA	

STATUS/CONDITION	THERE IS NO EVIDENCE THAT AN AUDIT HAS BEEN DOCUMENTED.
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EFFECT/COMMENTS	
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RECOMMENDATION	THE SCRTD IS IN THE PROCESS OF HIRING A CONSTRUCTION SAFETY MANAGER. RESPONSIBILITIES OF THIS MANAGER WILL INCLUDE AUDITING OF THE CONSTRUCTION SAFETY PROGRAM.
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APTA RAIL SAFETY AUDIT PROGRAM	CONTROL: 8802-FCL.14	8/4-6/87
14. OPERATIONS SAFETY REF: 6.0	AUDITOR: DZINSKI	
PAGE 36 OF 38		

ITEM #	ITEM DESCRIPTION	1	2	3	REMARKS
14.1	REVIEW SCRTD PLANS FOR DEVELOPMENT OF ALL NECESSARY RULES & PROCEDURES FOR	X			
----	REVENUE SERVICE	--	--	--	---
14.2	REVIEW SCRTD PLANS & CAPABILITIES FOR ENSURING ADEQUATE TRAINED PERSONNEL	X			
	AVAILABILITY FOR REVENUE SERVICE				
14.3	ENSURE INCORPORATION OF IDENTIFIED HAZARDS INTO RULES DEVELOPMENT & TRAINING	X			SF 14.3
14.4	VERIFY INCORPORATION OF ALL SOFTWARE, PROCEDURAL, & HUMAN RESOURCE ELEMENTS INTO	X			SF 14.4
	SAFETY CERTIFICATION PROGRAM				

COLUMN DEFINITIONS:
1: MEETS PLAN REQUIREMENTS 2: NEEDS IMPROVEMENT (SEE SUPPLEMENTAL FORM)
3: NOT AUDITED (SEE REASON OR REFERENCE IN REMARKS COLUMN)

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.14	8/4-6/87
ITEM: OPERATIONS SAFETY		SF # 14.3	PAGE 37 OF 38
AUDITOR: DZINSKI			

STATUS/CONDITION	<p>THE SCRTD METRO RAIL PROJECT HAS NOT YET REACHED THE POINT WHERE OPERATING RULES & PROCEDURES AND OPERATIONAL TRAINING ISSUES ARE BEING DEVELOPED; HOWEVER, THE OPERATIONS UNIT HAS PROVIDED INPUT INTO THE DESIGN PROCESS. IN ADDITION, THE SCRTD HAS EMPLOYED A CONCEPT KNOWN AS MILESTONE REPORTING, WHEREIN INPUT FROM EXPERTS IN VARIOUS FIELDS HAVE REVIEWED AND COMMENTED ON METRO RAIL DESIGN CONCEPTS.</p>
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EFFECT/COMMENTS	<p>TOO EARLY IN THE PROJECT FOR MAJOR OPERATIONS PLANNING. MILESTONE CONCEPT APPEARS TO BE AN EXTREMELY POSITIVE COMPONENT OF THE DESIGN PROCESS, ESPECIALLY FOR PROVIDING OPERATIONAL INPUT INTO SYSTEM DESIGN. THE OPERATIONS UNIT ALSO PARTICIPATES IN THE HAZARD RESOLUTION PROCESS AND PROVIDES INPUT INTO RESOLUTION OF ALL IDENTIFIED HAZARDS.</p>
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RECOMMENDATION	<p>WHILE OPERATIONS PLANNING IS NOT YET A CRITICAL SCHEDULING ITEM, THE SCRTD IS URGED TO CONTINUE ITS PRACTICE OF INCLUDING OPERATIONAL INPUT IN ALL PHASES OF THE DECISION PROCESS. THIS WILL ENSURE SYSTEM DESIGN CONFORMS AS MUCH AS POSSIBLE WITH EXISTING OPERATIONAL PRACTICE, AS WELL AS PROVIDE THE OPERATIONAL UNITS WITH INFORMATION ON IDENTIFIES HAZARDS FOR INCORPORATION INTO RULES DEVELOPMENT AND TRAINING PROGRAMS.</p>
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TENTATIVE & PRELIMINARY
For Discussion Purposes Only

APTA RAIL SAFETY AUDIT PROGRAM		CONTROL # 8802-CL.14	8/4-6/87
ITEM: OPERATIONS SAFETY		SF # 14.4	PAGE 38 OF 38
AUDITOR: DZINSKI			
STATUS/CONDITION	THE SCRTD HAS NOT YET BEGUN MAJOR EFFORTS ON DEVELOPMENT OF OPERATING RULES AND PROCEDURES; HOWEVER PROVISIONS IN THE SAFETY CERTIFICATION PROGRAM CALL FOR VERIFICATION OF ALL SUCH SOFTWARE ELEMENTS.		
EFFECT/COMMENTS	NO EFFECT ON PROJECT AT THIS TIME.		
RECOMMENDATION	WHILE THIS PROGRAM ELEMENT IS NOT YET AT A CRITICAL SCHEDULING POINT, THE SCRTD IS URGED TO ENSURE COORDINATION CONTINUES ON THIS ISSUE, ESPECIALLY IN VIEW OF THE POSSIBLE MERGER OF AREA AGENCIES. THE OPERATIONAL READINESS ISSUES WILL BECOME CRITICAL AS SYSTEM ACTIVATION APPROACHES REGARDLESS OF HOW THE ORGANIZATION HAS CHANGED IN THE MEANTIME.		