

TSA SECURITY EQUIPMENT CONFIGURATION MANAGEMENT AND QUALITY ASSURANCE PROGRAMS

June 27, 2007



Transportation
Security
Administration



INTRODUCTION



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Configuration Management
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for the

**Transportation Security Administration (TSA)
Office of Security Technology (OST)
Lifecycle Support Division**

7/9/2007

AGENDA



- History (Where we were.....)
- System Overview (Where we are)
- ISO 9001:2000
- Configuration Management & Quality Assurance (Where we're going)
- Open Discussion

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HISTORY



- Rapid deployment of Airport Security Equipment after 9/11 was done without the luxury of structured System Acquisition processes. As a result, much of the requirements analysis and related support analyses are being done after the fact
- Changing TSA's Life Cycle Support focus from one of Deployment to one of sustainment has been filled with challenges
- Configuration Control, Requirements Management, Cost, Schedule, and Performance challenges are linked to the original need for difficult deployment
- Both the TSA and OEM's have struggled with numerous, seemingly ordinary logistics issues that would have evolved out of a normal acquisition process



MISSION



“The mission of TSA OST is to protect the security of the multi-modal transportation system through test support and deployment support of explosive detection and other security technology. TSA OST is committed to complying with requirements and to continually improve the effectiveness of the Quality Management System.”



OBJECTIVE



“TSA OST will continue to develop our staff, physical infrastructure, and partnerships to enhance worldwide recognition for leadership in multi-modal transportation security, support development and testing, and by being a key partner in determining the application of multi-modal transportation security technology. Our technical ability will continue to improve the security of the transportation community.”

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TSA SYSTEM OVERVIEW



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Explosives Detection System (EDS) Equipment



GE CTX 2500



GE CTX 5500



GE CTX 9000



L-3 Examiner



Reveal CT80



AN6400



EDS Equipment Function



- **CTX 2500, TSA certified, supports the latest in Computed Tomography (CT) explosives detection with compact design. Ideal for small lobby installation.**
- **CTX 5500, TSA-certified explosives detection system (EDS) with high throughput capabilities. Includes Threat Image Projection, Advanced User Interface & Dynamic Screening. For use in busy terminals**
- **CTX 9000, TSA-certified. Recognized for high performance and throughput rate, represents the latest in CTX technology, designed to integrate with baggage handling systems (BHS)**
- **L-3 6000 Examiner, A multi-slice CT Explosives Detection System (EDS), TSA-certified, measures and assesses material properties, maximizing automated explosives detection while minimizing false alarm rates, 3-D analysis of luggage and 2-D projected viewing angles**

WBI Equipment Function



- **AS&E SmartCheck, AS&E's SmartCheck system is an effective way to screen for contraband and threats hidden under a person's clothing. It simultaneously detects both metallic and non-metallic objects and other hidden threats and contraband. The optional privacy filter uses software algorithm to address privacy concerns**
- **Rapiscan Secure 1000, This people screening system produces high resolution images that enable the operator to easily identify concealed threat and contraband items. The system is ideal for high security environments because both organic and inorganic materials are apparent in the image**
- **L-3 ProVision, Body Screening System screens people for concealed threats – without exposure to harmful electromagnetic radiation. ProVision's active millimeter wave imaging technology penetrates clothing and packing to reveal and pinpoint hidden weapons, explosives, drugs, and other contraband**

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Explosive Trace Detection (ETD) Equipment



GE Itemiser 3



GE Itemiser FX



**Smiths Ionscan
400B**



**Smiths Ionscan
500DT**



**Smiths Document
Scanner**



**Thermo EGIS
Defender**



Thermo EGIS II



ETD Equipment Function



- **Smiths Document Scanner**, provides the capability of detecting trace amounts of more than 40 explosive and narcotic substances in a quick 8 second analysis. The color coded display presents instrument status information and results to the operator in an easy to understand fashion. If detection is made, the specific explosive or narcotic is identified on the display
- **Thermo EGIS Defender**, this Explosives Trace Detection (ETD) system combines forensic technology and performance with rugged packaging, portability, reliability and ease of use. The highly flexible dual technology platform provides low false positives fro high inspection throughput. The system is based on High-Speed Gas Chromatography (HSGC) technology combined with Differential Ion Mobility Spectrometry



ETD Equipment Function



- **Thermo EGIS II, portable, bench-top explosives detection systems that detects plastic, commercial, and military explosives as well as ICAO taggants without using a radioactive source**

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ETP Equipment Function



- **GE Entry Scan 3, a high-throughput, non-intrusive walk-through portal that enables rapid detection of both explosives and narcotics. Microscopic traces of C4, nitroglycerin, PETN, RDX, Semtex and TNT can be detected and identified**
- **Smiths Sentinel II, contraband Detection Portal designed specifically for screening people for trace amounts of explosives and drugs. Ideal for high throughput applications. Trace amounts of more that 40 explosives and drugs are detected and identified in seconds. Uses Ion Mobility Spectrometry Technology**



Auto-EDS Equipment Function



- **Analogic Cobra, reduced size Carry-On Baggage Real-Time Assessment (COBRA) Explosive & Weapons Detection System** a high performance, easy-to-operate detection system integrates advanced Computed Tomography (CT) scanning and image interpretation software to screen carry-on/in baggage parcels for potential threats. generated a 3-D image of all objects, gathers data in one pass and analyzes entire contents of bag automatically



Tip Ready X-Ray (TRX) Equipment



Linescan 110 II



Smiths 6040i



Rapiscan 520B



Rapiscan 522B



TRX Equipment Function



- **Linescan 110 II, Designed to meet the requirements of TSA's TIP Ready X-ray hand-carry baggage inspection system. Incorporates advanced technology with dual energy detectors, high-energy integrated X-ray source and latest electronics. Patented Touch Pad Operator Console with Configurable Operator Interface, Threat Image Projection, Operator Assist and Image Archive Advanced Software**
- **Smiths 6040i, Compact X-ray inspection system ideal for cabin baggage and other small items. High-end processor technology, high-speed digital signal transmission, Hi-MAT advanced material classification, 24 Bit real time image processing**
- **Rapiscan 520B, Pentium computer technology. Offers Crystal Clear as standard feature and may be optionally equipped with Operator Training Program, manual Image Archive and Enhanced Performance X-ray (EPX)**

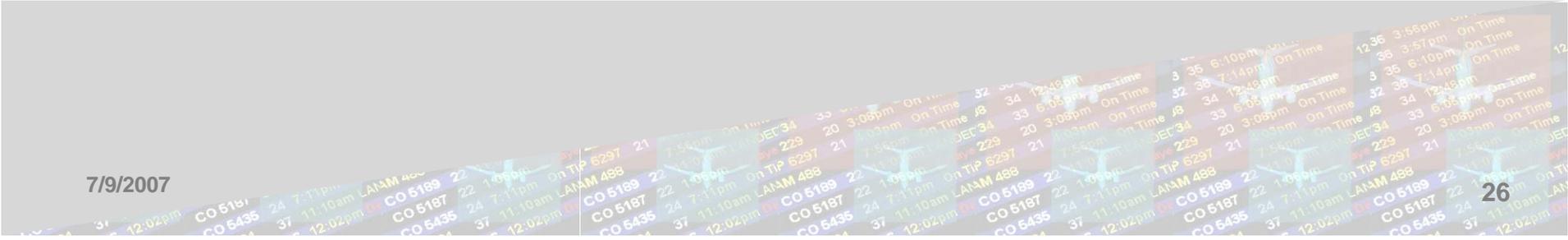
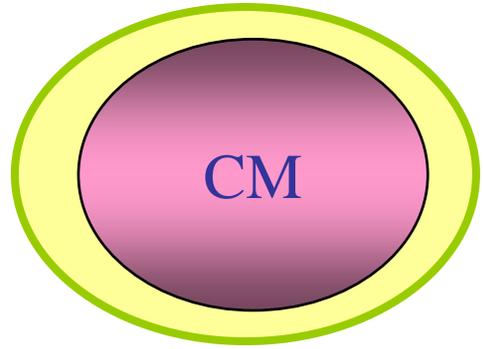
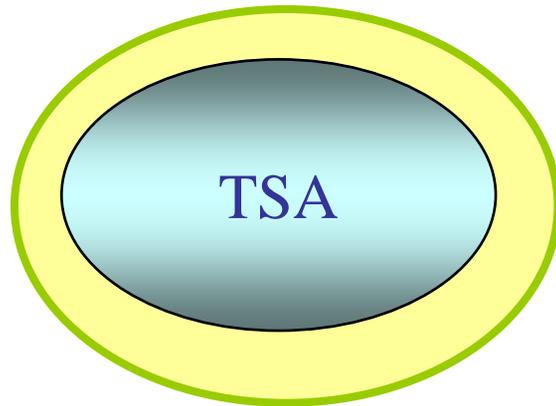
ISO 9001:2000



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TSA AREAS REGISTERED TO ISO 9001:2000



ISO DOCUMENTED PROCEDURES & FORMS



Registered Areas	Procedures/ Forms
Quality Office/All Reg. Areas	30
Quality Assurance	16
Configuration Management	32
TOTAL ISO PROCEDURES	78



ISO 9001:2000 CERTIFICATE



QMI Certificate of Registration

Management Systems Registration

Department of Homeland Security

has demonstrated that its Quality Management System is in compliance with:

ISO 9001:2000

The following scope of registration applies:

The Certification of the Core Processes of Quality Office, Quality Assurance and Configuration Management.

Registered Sites:

Transportation Security Administration,
Office of Security Technology
Building 315
Atlantic City Int. Airport, New Jersey
08405-0001 USA

Transportation Security Administration,
Office of Security Technology
701 South 12th Street
Arlington, Virginia
22202 USA

Certificate Number:
QMI File Number:
SIC Number / NACE Code:
Original Registration Date:
Current Registration Date:
Registration Expiry Date:

CERT-0012607
013042
8734 / K74.3
April 17, 2002
April 12, 2005
April 11, 2008

CERT-0012607
1063143
8734 / K74.3
June 1, 2007
June 1, 2007
May 31, 2010



Wendy J. Tilford
Wendy J. Tilford
President of QMI

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CONFIGURATION MANAGEMENT & QUALITY ASSURANCE



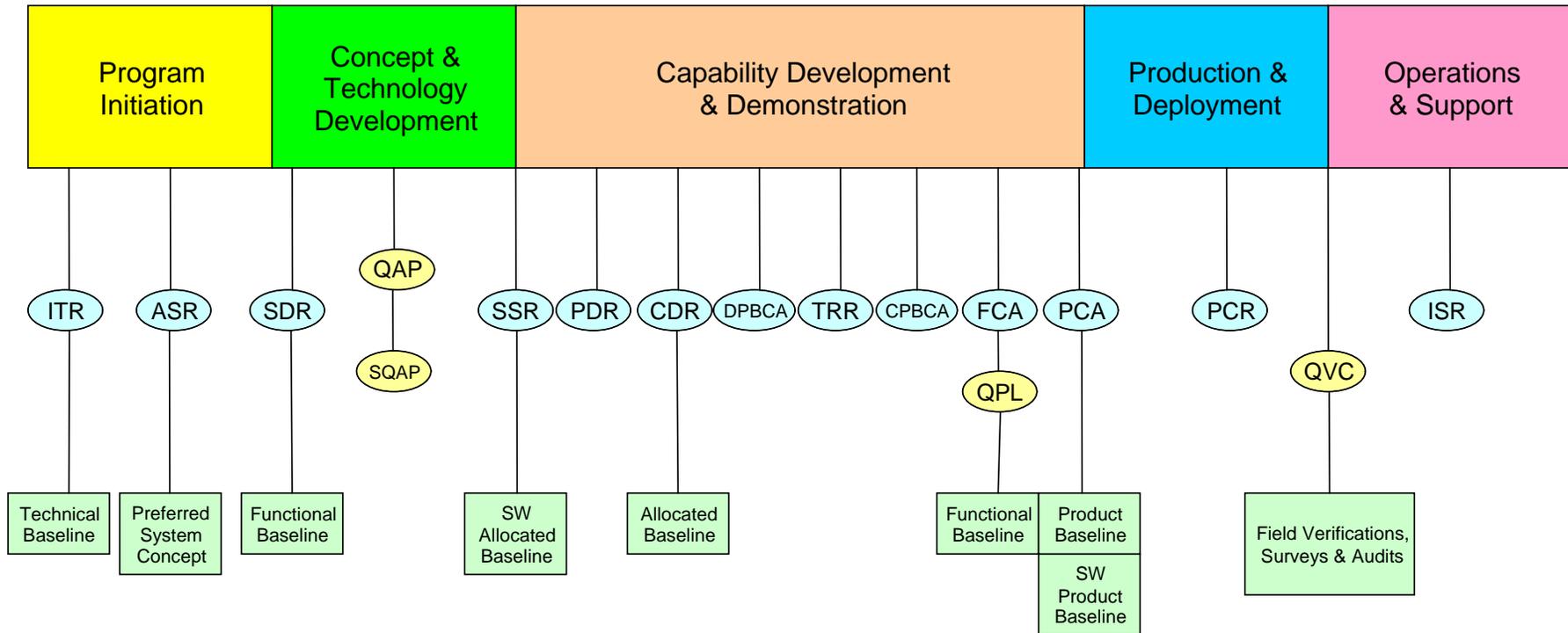
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PROGRAM PHASING & MILESTONES



OST CM and QA Responsibilities



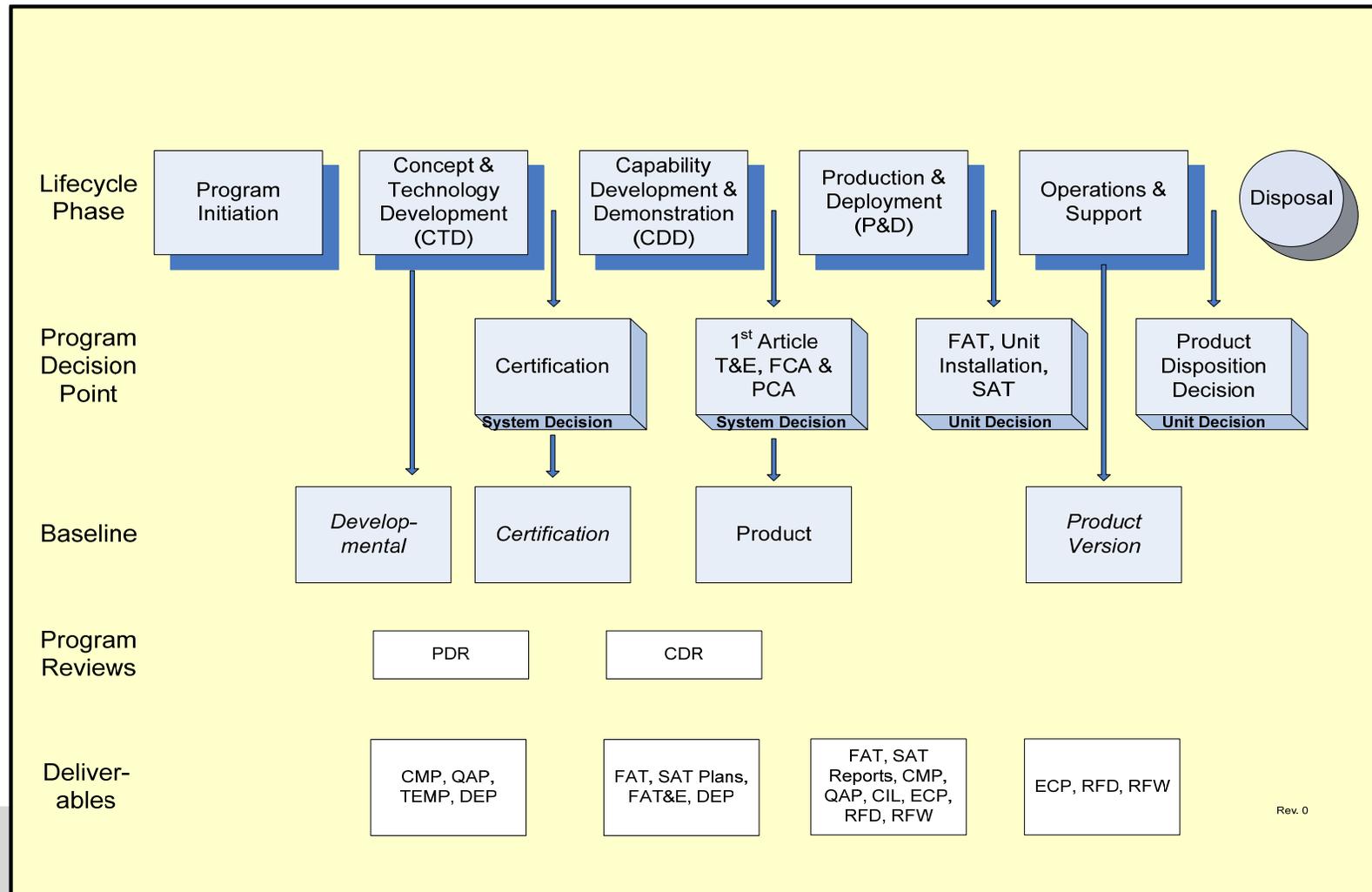
Legend:

ITR - Initial Technical Review
 ASR - Alternative System Review
 SDR - Systems Design Review
 QAP - Quality Assurance Plan
 SQAP - SW Quality Assurance Plan
 SSR - System Software Review

PDR - Preliminary Design Review
 CDR - Critical Design Review
 TRR - Test Readiness Review
 DPBCA - Developmental Product Baseline Configuration Audit
 FCA - Functional Configuration Audit

QPL - Qualified Product List
 PCA - Physical Configuration Audit
 PCR - Physical Configuration Review
 QVC - Quality Version Control
 ISR - In Service Review

PRODUCT LIFE CYCLE



Rev. 0

PROGRAM INITIATION PHASE



Prepare the Contract Deliverable Package to include:

- Statement of Work (SOW)
- Contract Deliverable Requirements List (CDRLs)
- Data Item Descriptions (DIDs)

Note: CM and QA contract language is now available to be incorporated into all solicitation packages



CONCEPT AND TECHNOLOGY DEVELOPMENT PHASE



- Review and Comment on QA and CM Plan
- Review Configuration Item List (CIL)
- Review and Process Developmental Deviations
- Review Configuration Status Accounting (CSA) Report
- Review Configuration Audit Plan
- Review Configuration Audit Summary Report (CASR)
- Review Master Test Plan
- Review Factory Acceptance Test Plan, Procedures, and Report
- Review Site Acceptance Test Plan, Procedures, and Report

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CAPABILITY DEVELOPMENT AND DEMONSTRATION



- **Verify Certified Pre-Production System CIs at TSL**
- **Monitor First Article Test and Evaluation (FAT&E)**
- **Monitor Regression Testing**
- **Monitor Preliminary Design Review (PDR)**
- **Monitor Critical Design Review (CDR)**
- **Conduct Certified Product Baseline Configuration Audit (CPBCA)**
- **Conduct Developmental Product Baseline Configuration Audit (DPBCA)**
- **Conduct Functional Configuration Audit (FCA)**
- **Conduct Physical Configuration Audit (PCA)**
- **Develop Product Baseline**
- **Conduct Operational Utility Evaluation (OUE)**

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PRODUCTION AND DEPLOYMENT PHASE



- Review First Article Test and Evaluation Plan, Procedures, and Report
- Review Factory Acceptance Test Plan, Procedures, and Report
- Review Site Acceptance Test Plan, Procedures, and Report
- Review and Comment on QA Plan
- Review and Comment on CM Plan
- Review and Process Engineering Change Proposals (ECPs),
- Request for Deviations (RFDs), and Request for Waivers (RFWs)
- Update Product Baseline
- Conduct Functional Configuration Audit
- Conduct Physical Configuration Audit

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OPERATIONS AND SUPPORT PHASE



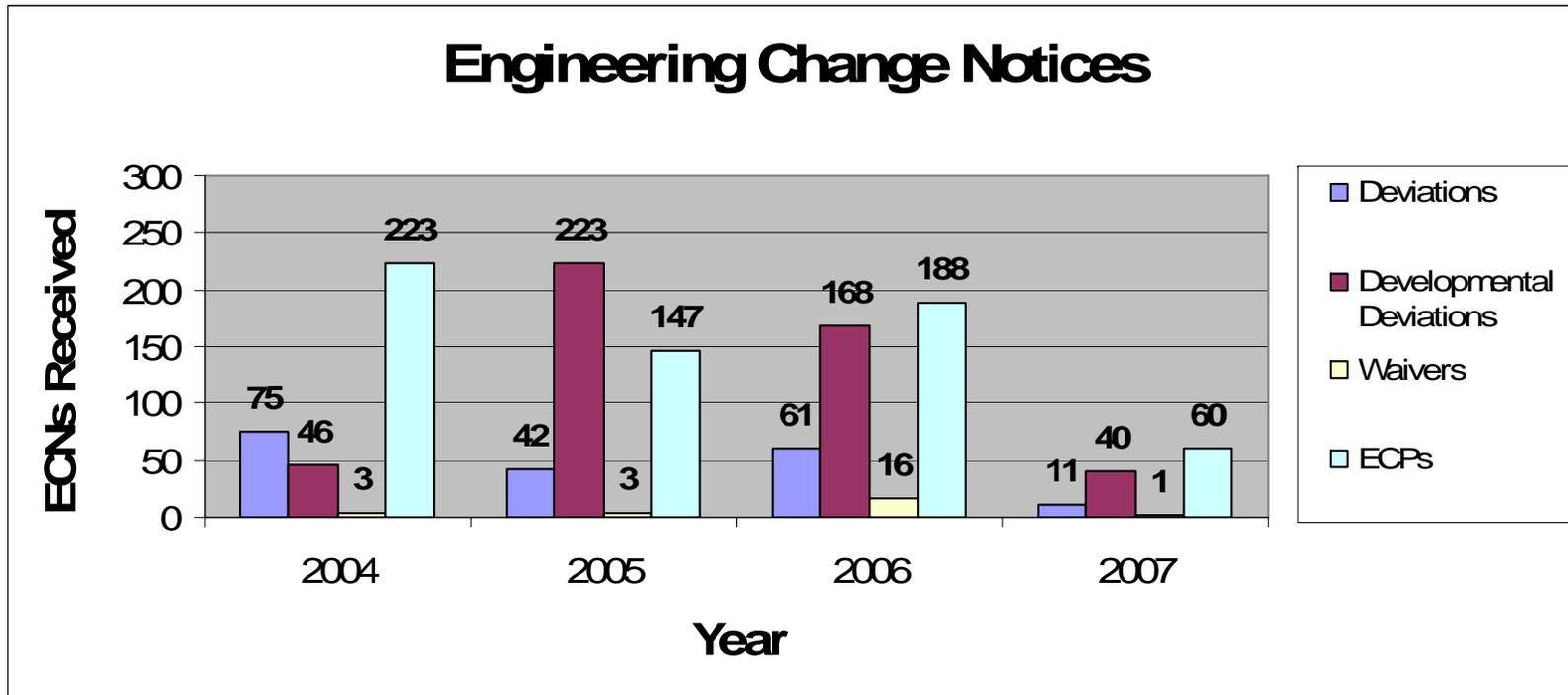
- Conduct Baseline Integrity Audit
- Process change notices and maintain product baselines

END OF LIFE PHASE

- Ensure proper documentation received for disposal of HAZMAT CIs



CHANGE NOTICE YEARLY TREND ANALYSIS



CHANGE NOTICES BY MODEL

9/1/06 – 3/31/07



Model	Deviations/ Waivers	Developmental Deviations	ECPs	Total ECNs	% of Total ECNs
IL06000	14	0	8	22	10.8%
317-6000-00	1	4	1	6	2.9%
500DT	0	11	0	11	5.4%
520B TRX/ RAP 520B	1	0	3	4	2.0%
522B TRX/ RAP 522B	1	0	3	4	2.0%
6040	0	7	0	7	3.4%
6040i / TRX 6040i	3	0	2	5	2.5%
6046si	3	1	0	4	2.0%
7555i / TRX 7555i	3	0	3	6	2.9%
AN6400	0	7	0	7	3.4%
COBRA-A	0	2	0	2	1.0%
CT-80	5	17	20	42	20.6%
CTX 2500	0	1	7	8	3.9%
CTX 5500DS	6	5	6	17	8.3%
CTX 9000DSi	4	4	12	20	9.8%
CTX 9400DSi	0	5	1	6	2.9%
CTX 9800DSi	0	1	1	2	1.0%
ES3e	1	0	0	1	0.5%
eXaniner 6500	0	1	0	1	0.5%
Iteniser98	0	0	1	1	0.5%
Sentinel II	0	23	1	24	11.8%
SRT Kiosk	0	4	0	4	2.0%
**Due to Multiple models on ECNs the total does not match previous slides.				204	100.0%



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TOP 5 MODELS GENERATING ECNs

9/1/06 – 3/31/07



Model	Deviations/ Waivers	Developmental Deviations	ECPs	Total ECNs	%of Total ECNs
CT-80	5	17	20	42	20.6%
Sentinel II	0	23	1	24	11.8%
1L06000	14	0	8	22	10.8%
CTX9000DSi	4	4	12	20	9.8%
CTX5500DS	6	5	6	17	8.3%



QA OEM PROGRAM



- Evaluate OEM Quality Assurance Plans
- Developed procedures to expand scope of ISO 9001:2000 to OST Activities
- Validate and verify OEM quality control programs
- Perform quality in process reviews on site
- Review and track quality related outputs of CDRs and DIDs

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QA OEM PROGRAM ACTIVITIES



- Conduct audits of assigned functional areas at OEM facilities
- Collect data as required
- Conduct interviews of the auditee as assigned
- Document the results of all auditing, research, and data collection
- Prepare draft observations and corrective action reports;
- Prepare draft final reports
- Track all corrective action reports written during QMS audits; and ensure that follow-up audits include assessments of the OEMs' corrective actions taken in response to previously written corrective action reports

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DATABASE CONSOLIDATION PROJECT



- **OST CM Team coordinates and consolidates existing CM data**
- **Data encompasses lifecycle CM activities**
- **Database backed web front end records all change notice information**
- **Enables technical review and approval of change notices and facilitates CM activities independent of geographical location**
- **Improves information sharing as well as operational efficiency and effectiveness**



CI LIST VERIFICATION TASK



- Ensure accuracy of CI data for TSE
- Provide confidence in operational product baselines across 14 legacy systems
- Needed to conduct IV&V, update operation and maintenance instructions, provide training, and acquire spare and repair parts
- Provide an accurate baseline from which to evaluate OEM proposed changes
- To be utilized for improved database functionality allowing automatic baseline updates at the time of change notice approval
- Guarantee accurate data for other LCSB and TSA initiatives (i.e. SEAR, STIP)
- Provide system baselines to the logistics organization on a real time basis

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STANDARD CONTRACT LANGUAGE



- Developed SOW, CDRLs and DIDs to aid OEMs in submitting correct deliverables to TSA for CM and QA
- Ensures integrity of system documentation
- Legal ramifications
- Provides a basis for quality checkpoints
- Provides ability to evaluate deliverables against an established standard

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CM/QA CONTRACT DOCUMENTATION REQUIREMENTS



The OST Contract Documentation Requirements for CM and QA is a single integrated package (requiring no external references) that contains:

- **Statement of Work (SOW) - Specific supplier tasking**
- **SOW Appendix - Additional CM Guidance for supplier**
- **Contract Data Requirements List (CDRL) - Specifies contract deliverables and their distribution**
- **Data Item Descriptions (DIDs) instructions - Provides preparation instructions and formats for data items**
- **Self-referencing CD with all documents**



STATEMENT OF WORK APPENDIX A ADDITIONAL CM GUIDANCE



- Configuration Items (CI)
- Configuration Change Management (Configuration Control)
- Request for Development Deviation (DEP)
- Engineering Change Proposal (ECP)
- Request for Deviation (RFD)
- Request for Waiver (RFW)
- Configuration Status Accounting (CSA)
- Configuration Audit
- Acronyms
- Definitions

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CM/QA CDRLs/DIDs



- **A010/CTO-QA-001 – Quality System Plan**
- **A036 – Quality Assurance Surveillance Plan (QASP)**
- **A011/CTO-CM-001 – Configuration Management Plan (CMP)**
- **A012/CTO-CM-002 – Configuration Item List (CIL)**
- **A013/CTO-CM-003 – Request for Developmental Deviation (DEP)**
- **A014/CTO-CM-004 – Engineering Change Proposal (ECP)**
- **A015/CTO-CM-005 – Request for Deviation (RFD)**
- **A016/CTO-CM-006 – Request for Waiver (RFW)**
- **A017/CTO-CM-007 – Configuration Status Accounting Report (CASR)**
- **A018/CTO-CM-008 – Configuration Audit Plan (CAP)**
- **A019/CTO-CM-009 – Configuration Audit Summary Report (CASR)**
- **PMP/CTO-CM-999 – CM/QA Portions of Program Management Plan (PMP PM 001)**

OST CM Guidance



- **MIL-STD-973 – Configuration Management.** This standard has been cancelled; but it may still be cited on some older contracts. MIL-STD-973 contained definitive instructions for supplier.
- **ANSI/EIA 649A – National Consensus Standard for Configuration Management.** This standard replaced MIL-STD-973, which prescribed definitive CM tasks for supplier.
- **MIL-HDBK-61A – Configuration Management,** is the primary reference for accomplishing Configuration Management.
- **ISO 10007 – Quality Management – Guidelines for Configuration Management**

