Exceptional service in the national interest

Sandia National Laboratories

Fire Protection, Safety, and Assurance Overview

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Sandia National Laboratories
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Deputy Director

- **Responsibilities**
  - Chief Process Officer
  - Building Official
  - Assist the Center Director
  - Lead Center initiatives
  - Lead performance evaluation activities and assist with SFO interface
  - Maintain, publish, and communicate the FLT calendar, decisions, issues, and deliverables
  - Manage, track, measure, and assess the issues
  - Manage, track, measure, and assess staffing acquisition activities
  - Manage and facilitate the annual performance and compensation review process

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Facilities ES&H

- Safety Staffing ($1.8M annual budget, includes $360k CA)
  - 1 Manager (+1 CA)
  - 5 Degreed Safety Professionals (3 Staff, 2 Contract)
  - 3 Safety Technologist Staff (Trades Experience)
  - 4 ½ Matrixed Professional Subject Matter Specialists
    - Industrial Hygiene, Rad Tech, Waste, Environmental
  - 1 Union Safety Liaison (new)
- Asbestos Program ($800K annual budget)
  - Oversight Management Contract (~ 8 people)
  - Asbestos Removal Contract (ranges from 5 – 30 people)
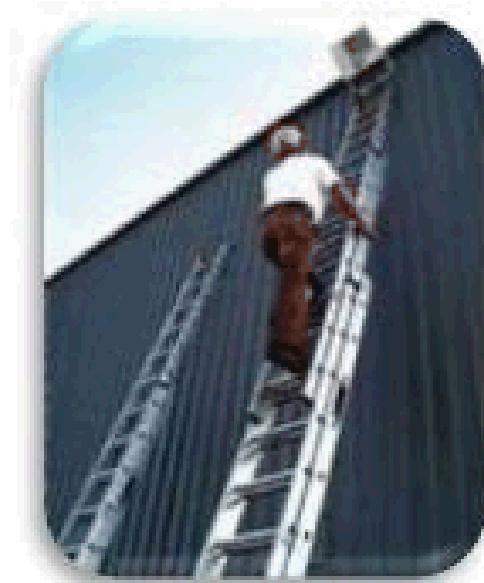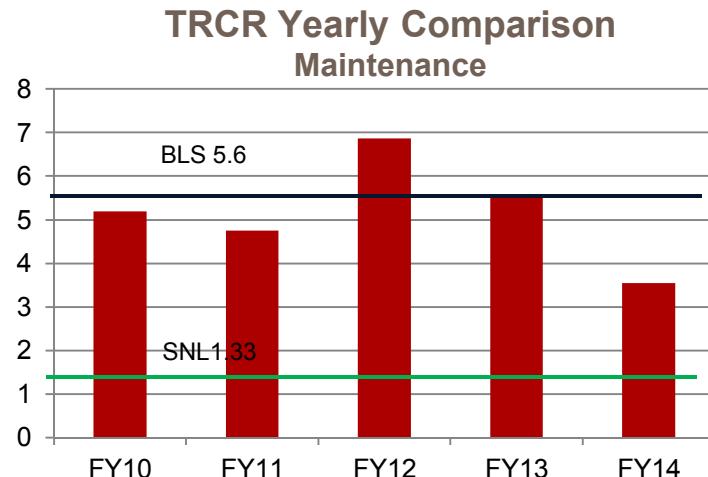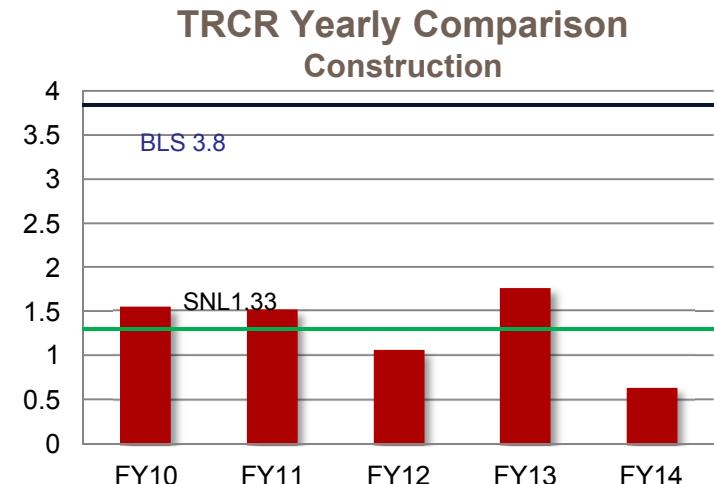
Facilities Environment, Safety & Health

- Plan
    - Ensure DOE/NNSA requirements are reviewed, understood and accepted prior to implementation using the requirements management process to create a safe work environment (Primary driver 10CFR851)
    - Ensure all staff have been trained and are following established processes for service delivery

- Do
    - Perform activity risk identification and management of controls prior to performing work
    - Ensure safety of all personnel and contractors (BBS)
    - Be accountable for ES&H and security of all activities

- Check
    - Track, trend and assess the ES&H and Asbestos management and team execution using process metrics
    - Perform self-assessments
    - Monitor compliance to safety practices.

- Act
    - Improve process by application of lessons learned
    - assign support for audits, occurrences and other activities

- Engineered Safety Video

Safety Performance
Strengths

■ Facilities developed overarching strategies in support of Laboratories Engineered Safety efforts

  ■ Developed 27 Safety Cases for maintenance, construction, and engineering

  ■ Excellent leadership from managers, participation from staff and contractors

■ In FY14, Facilities achieved the best safety rates in over a decade for both maintenance and construction activities

 ■ This performance continues the excellent trending results from the past four consecutive years

TRCR Yearly Comparison
Construction

BLS 3.8

SNL 1.33

FY10 FY11 FY12 FY13 FY14

TRCR Yearly Comparison
Maintenance

BLS 5.6

SNL 1.33

FY10 FY11 FY12 FY13 FY14

Facilities Fire Protection, Assurance and IT

- 1 Manager (+1 CA)

- Fire Protection ($5100K annual program budget, includes CA)
    - Fire protection Engineering ($1400K)
        - 6 Fire Protection Professionals (5 PEs, 1 NICET)
        - 1 Technologist Specialist (NICET)
        - 1 ICC / Plan Review Certified Technologist
    - Fire Dept ($2M), ITM ($1.7M)

- IT, Communication and Administrative ($280K annual budget)
    - Facilities Information Technology
        - 2 Administrative/Technologist (+1 matrixed staff)
    - Document Management
        - 1 Facilities Technologist
    - Communications / Publications
        - 3 Matrixed Communication Specialists

- Assurance – ISO-9001; DOE O 414.1D
    - 2 Matrixed* Staff
    - 2 Process Coordinators

BUILDING & FIRE SAFETY
SANDIA NATIONAL LABORATORIES

■ **Building Information Modeling (BIM) Standards Implemented**

The FMOC has implemented BIM standards that will guide contract architectural and engineering (A/E) firms in providing consistent BIM models to Sandia. BIM includes the development and use of multifaceted computer software 3D models, and by developing these models during the design phase of a project, changes and rework are minimized during the construction phase, resulting in reduced cost of projects. According to the General Services Administration's *Building Information Modeling Guide Series 01*, these models can be used to document the building design, as well as simulate the construction and operation of a new or modernized facility. The resulting model is an object-based, data-rich, intelligent, and parametric digital representation of the facility, from which views appropriate to the users' needs can be extracted and analyzed to generate feedback and improvement of the facility design.
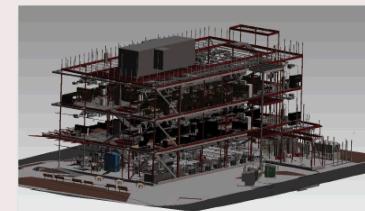
Fire Protection Program

- Administration
  - Policy, Requirements, Risk Mngt, Procedures, Staffing
- Inspection, Testing and Maintenance
  - Fire Protection Systems
  - Internal & Service Contracts
- Emergency Response
  - Investigations
  - Pre-Incident Plans
  - Emergency Operations Planning
- Construction Oversight
  - Code Compliance
  - Certificates of Occupancy
- Operations Oversight
  - Condition Assessments
 - Fire Hazards Analysis / Fire Modeling
  - Permits
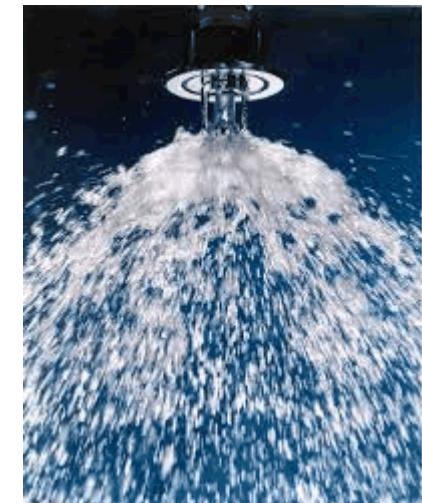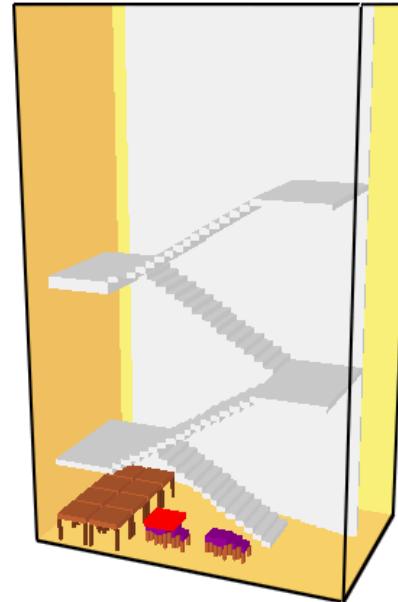
Facilities Information Technology

- Center-Level Perspective (Planning and Budget) for Facilities Related Software and Primary Interface with Corporate IT
- New Initiatives
  - Project Management Collaboration
  - Environmental Management Tracking System (Asbestos)
  - Geographic Information System
  - CADD Support Request System
  - Mobile Laboratory Assessment Tool
  - Mobile Maximo
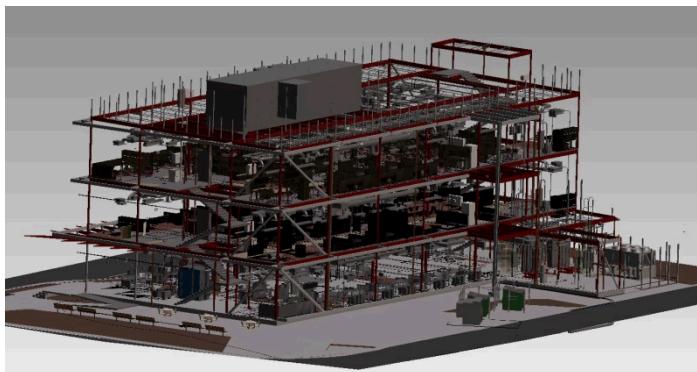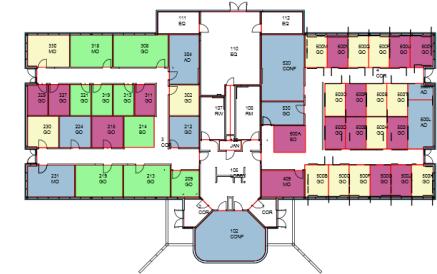
Space Management Module

BIM Modeling

GIS Mapping

Facilities Communications and Document Control

- Communications
  - News Center
  - Presentations
- Documents
  - [Publications Request System](#)
  - Contract Document Management
  - File Net
  - Forms
  - Guidelines
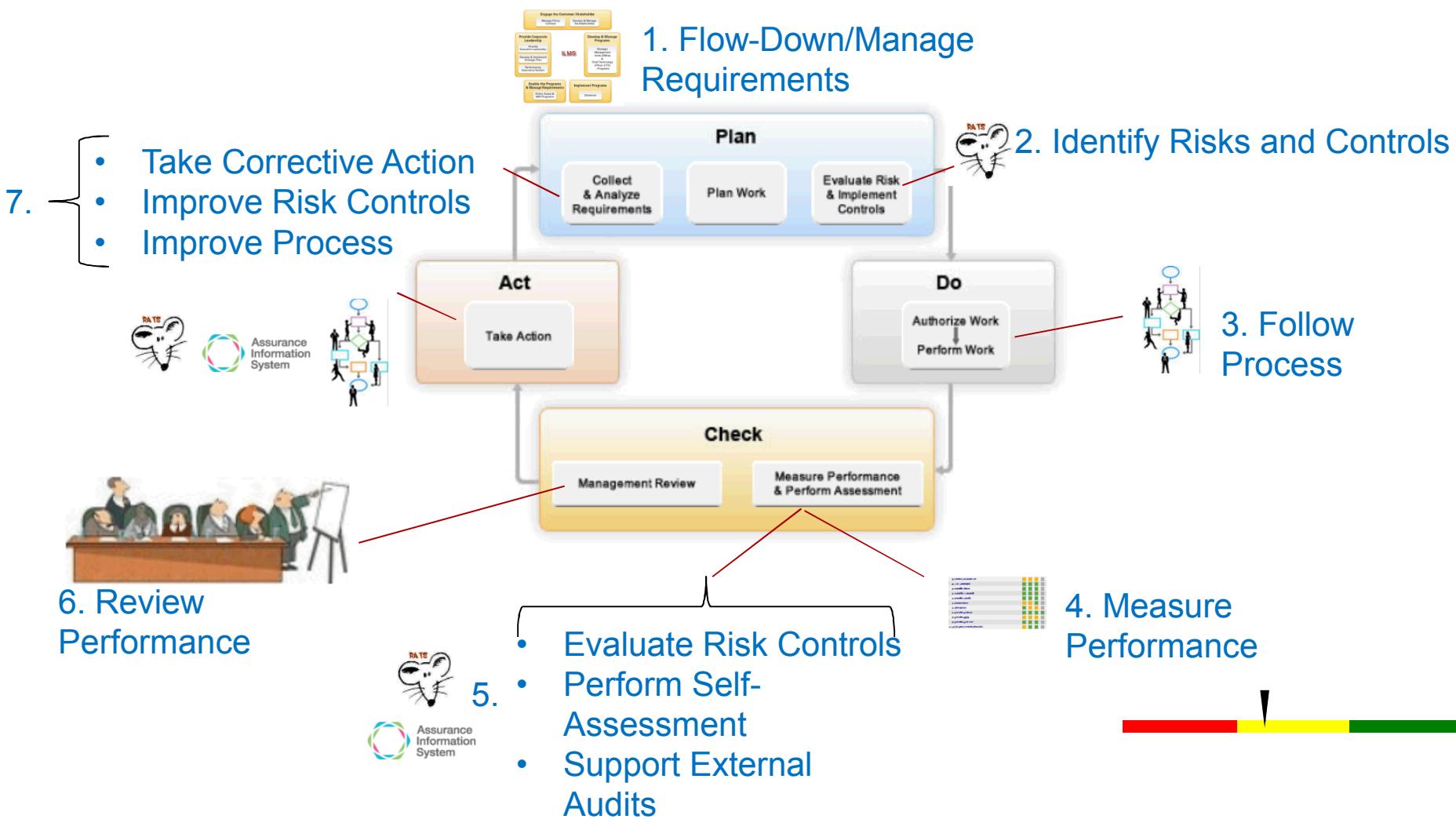 - Standards and Specifications

Facilities Assurance

- Facilities Web Site
- Assurance Information System
- Measurements (Dashboard)
- Process Management System
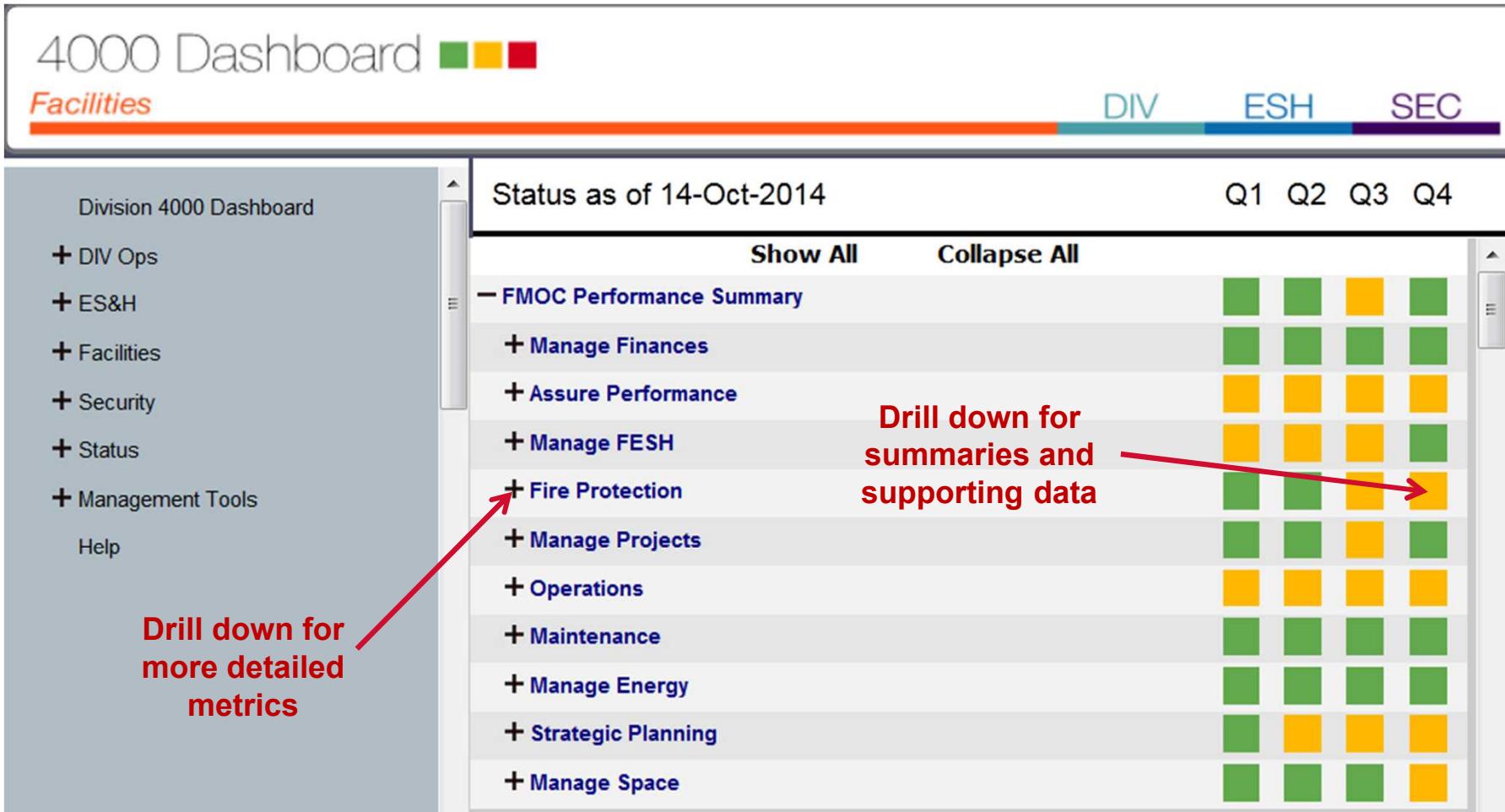- Risk assessment Tracking
- Lean Six Sigma Quality Initiatives

Center 4800

Inherent Risks (before controls)

Residual Risks (after controls)

Overall weighted risk reduction 52%
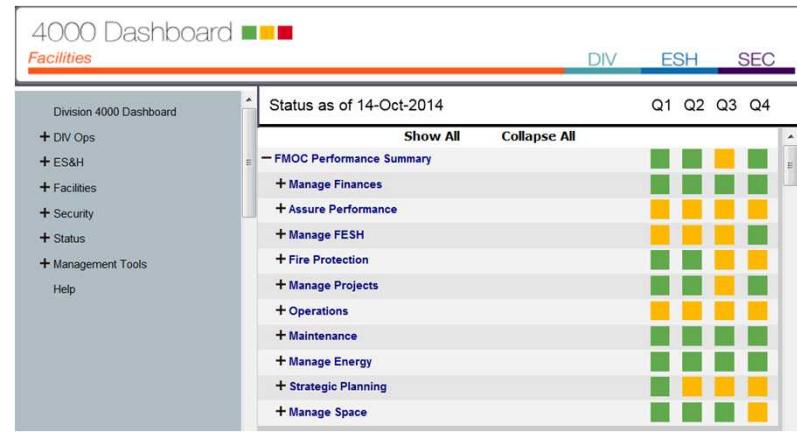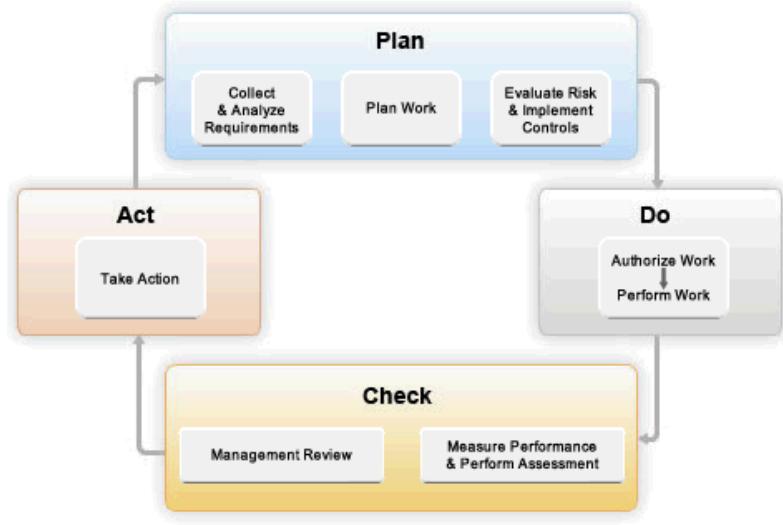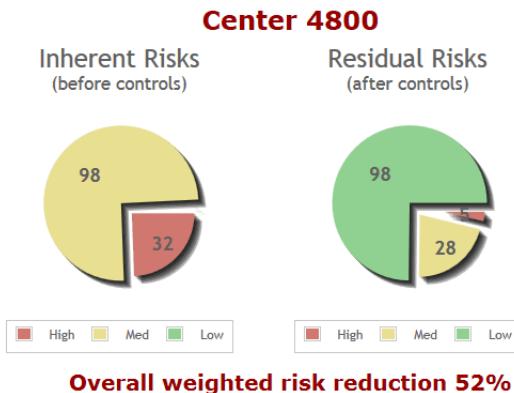
Backup Slides

Facilities Assurance System

1. Flow-Down/Manage Requirements

2. Identify Risks and Controls

3. Follow Process

4. Measure Performance

5.
- Evaluate Risk Controls
- Perform Self-Assessment
- Support External Audits

6. Review Performance

7.
- Take Corrective Action
- Improve Risk Controls
- Improve Process

Plan
- Collect & Analyze Requirements
- Plan Work
- Evaluate Risk & Implement Controls

Do
- Authorize Work
- Perform Work

Check
- Management Review
- Measure Performance & Perform Assessment

Act
- Take Action

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Measures & Metrics

Overview

Key metrics are tracked in our on-line Assurance tool

Metrics Example – Fire Protection

Drill down for details

Drill down for supporting evidence

FY15 Q2 Review: Fire Protection, Safety & Assurance

Accomplishments

- ChemPro rollout

- Realigned FP metrics with DOE O 420.1C

- Issued FP Policy

- Key Staffing Positions Filled

    - Senior Manager

    - MTC Safety Lead

    - IT Lead

    - Maintenance Safety Engineer

Assessments, Corrective Actions and Benchmarking

- Improving management of delinquent documents & corrective actions
- Q2 Assessment - Center 4800 Assurance Maturity
- January visits from OMB and AWE

Issues & Risks

- Dashboard Link
- Office of Enforcement Report B905 / 9920
- Staffing – Action Officer, FP, Pubs/Training/Communications, several acting positions

Major Initiatives

- Validate Safety Cases
- Center 4800 Assurance Maturity Plan
- DOE O 420.1C Implementation Plan
- Installing next gen fire alarm panels
- Automatic sprinkler installations at TTR
- SIAs
    - Center 4800 IT needs
    - Center 4800 communication
- Piloting new project management software

Overview of Major FY14 Acomplishments

Assurance / Policy
- Succession plan – acting Deputy Director / Senior Manager for 9 months
- Developed & communicated Value-Based Leadership tool
- Established a path forward for Line-Managed Construction Policy
- Developed Center 4800 Assurance Maturity Plan that is driving continuous improvement
- Developed communications template to articulate FMOC value to the Mission
- Initiated SIA on employee development / training – also benefits succession planning
- Re-baselined IT cost; reduced costs of licensing; strengthened management accountability & business ops; improved response-time performance to IT issues with Tririga app
- Managed 4800 Dashboard and Corporate Scorecard metrics
- Updated Policies on Projects (align with Line-Managed Construction) and Fire Protection (align with DOE O 420.1C)

Fire Protection
- Succession plan – acting Department Manager for 9 months
- Teamed with SFO and NNSA/HQ to develop DOE 420.1C Implementation Plan
- Championed business case and commissioning authority for installing sprinkler systems at AML and TTR
- Developed FHA for KAFB (Mission Customer request)
- Supported negotiations with Sandia ER, KAFB/FD and SFO on new base support agreement
- Provided technical support to hazardous material procurement tool (ChemPro) that is mitigating corporate risk
- Aligning SNL/CA & TTR fire protection implementation with SNL/NM
- Began developing emergency response baseline needs assessments at TTR and KTF
- Maturing Fire Risk Index methodology to influence decision cost/risk/benefit
- Re-baselined Fire Protection staffing needs
- Highest level of Leadership & Competency: Chair Fire Protection EFCOG; Principal on NFPA / ICC Tech Committees; manager & staff presentations at external events; 1PhD; 6 MS; 6 PEs; 2 NICET; 2 CFEI; 4 pursuing MS Degrees

Safety
- Developed a focus area strategy for improving FMOC Safety Performance – mngt engagement; accountability; critical/thinking; training
- Mentored Safety Department Manager on re-baselining FESH / Asbestos budget
- Provided review of Engineered safety cases for maintenance and construction

FY14 Improvement Focus Areas

General

- Engaging Management and Workers (trust, confidence, partnership)
- Communicating FMOC contributions to mission success

Assurance / Policy

- Revising construction policy
- Advancing employee development / training / succession planning
- Building Assurance Maturity System – see implementation plan
  - AIS records quality and value to organization
  - Publications consistency, training, and assessment per maturity plan
  - SNL/CA document management system
  - RATS interface / functionality
  - Growing as a learning organization

Fire Protection

- Developing model for TTR fire protection implementation (apply to KTF)
- Building Official role – IAS accreditation
- Maintaining a technical basis for risk-based approach to FP program implementation

Safety

- Achieving excellent safety performance (Engineered Safety, Target Zero, BBS)
- Communicating FMOC safety system approach
- Tying management surveillance to system safety approach

Overview of Recent Accomplishments

Fire Protection

- Significant fire risk reduction at AML
- Influencing DOE O 420.1C implementation for other sites (EFCOG)
- Strengthened qualifications: 2 new MS FPEs; New PE; New FE; 3 enrolled in MS FPE program at Cal Poly

Safety

- Completed engineered safety failure modes analyses for all maintenance activity-level work
- Completed FMOC Safety Plan
- Added new ES&H Coordinator

Assurance

- Aligned FMOC risk management system with corporate/PEP objectives
- Provided consequence criteria for management awareness in RATS
- Conducted RCA to support TA-V Activities; supported 29 Audits & Assessments
- Supported SFO Assistance Visit for 2 projects under ARRA requirements
- Co-authored Fiscal Crisis Contingency Planning Lessons Learned SAND Report
- Aligning CA document management system with NM approach
- Piloting Laboratories' Electronic Signature Services
- Improved timeliness of resolving Production issues in FMS Fac Assess & Space Modules
- Completed Phase 1 of FMS Projects Module training

Current High-Level Issues

EO, SFO, Union relationships
- SFO operating under transactional oversight
- Lack of FLT involvement in decisions affecting the FMOC
- MTC contract negotiations

Right-sizing the FMOC
- Perception that the FMOC can be streamlined
- Sandia O&M and re-cap < 3%, below industry standard 4%
- No FIRP or Line-Item funding
- Growing deferred maintenance

Total Comp driving loss of core competencies
- Discrepancies in pay bands with non-Facilities families for similar work
- External market index values

Improve Performance
- Safety
- Projects
- Space Management

Current High-Level Issues (continued)

Assurance / Policy
- Line-Managed Construction not following requirements
- SFO questioning role qualifications
- IT–Facility Management System software implementation

Fire Protection
- DOE Order 420.1C Implementation Plan
- SFO turnaround time on requests (TTR Baseline Needs Assessment, equivalencies)
- Hazardous materials management

Safety
- TRCR for maintenance (custodial) above corporate goals
- Lack of understanding of Facilities safety assurance system