# Sandia National Laboratories

SAND2012-4572P

## *Facilities Management System*

LBNL Facilities Visit
June 6-7, 2012

Presenter:
Ed Williams, CMRP

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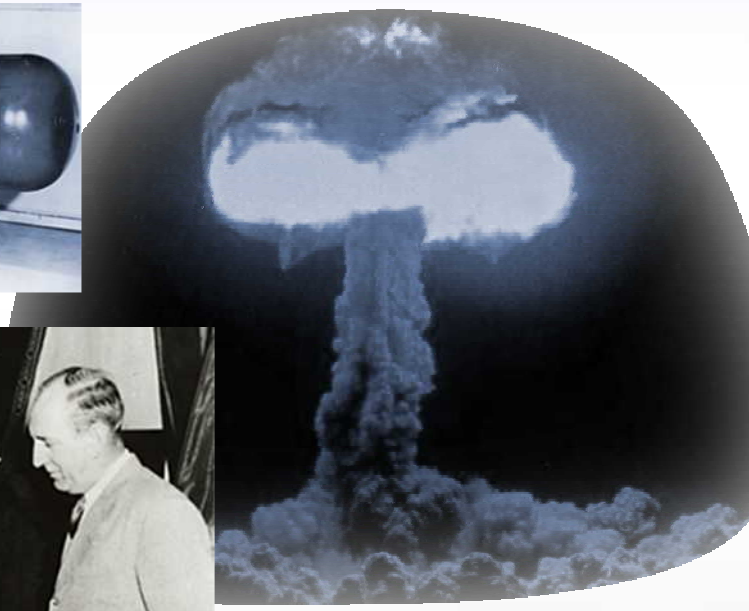
Sandia National Laboratories

# How It All Began





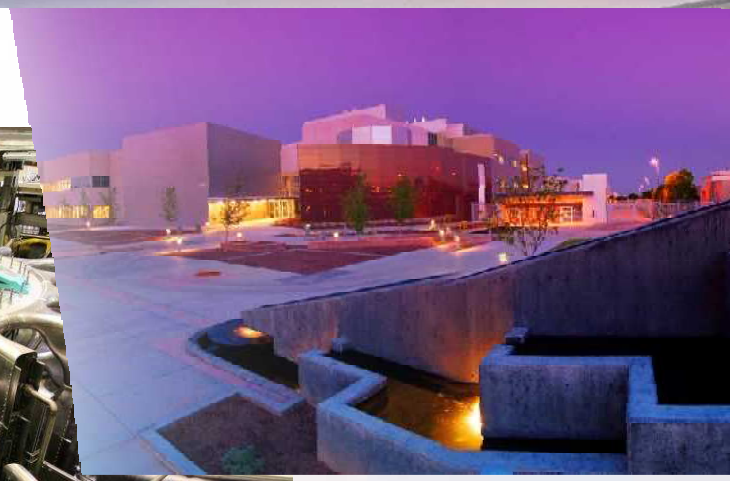

Sandia National Laboratories

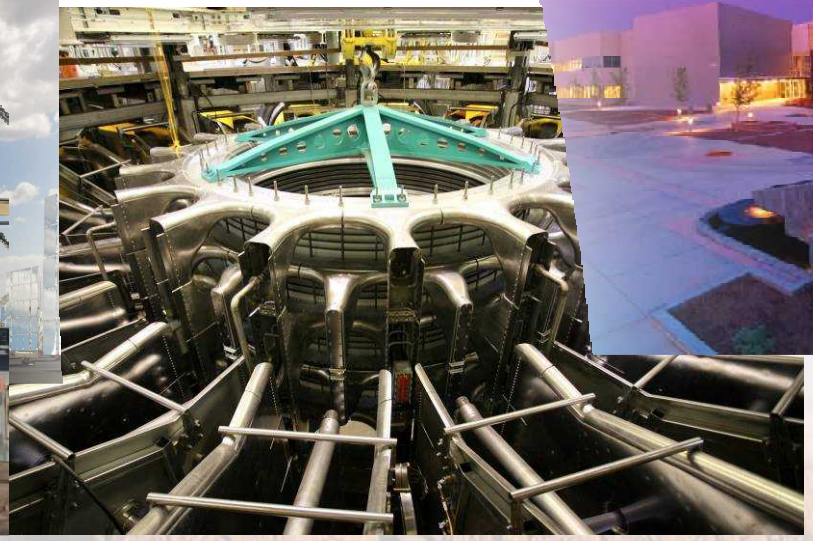
# Technologies for National Security

- We develop technologies to
  - Sustain, modernize, and protect our nuclear arsenal
  - Prevent the spread of weapons of mass destruction
  - Provide new capabilities to our armed forces
  - Protect our national infrastructure
  - Ensure the stability of our nation's energy and water supplies
  - Defend our nation against terrorist threats

# Unparalleled Facilities and Test Capabilities

- User facilities
- Designated national capabilities
- Z-Machine and radiation effects
- Real-life physical test ranges





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# SNL Primary Sites

Albuquerque, New Mexico

- Onsite workforce: 11,415
- Regular employees: 8,225

Livermore, California

Kauai, Hawaii

Tonopah, Nevada

# FMOC Space Summary

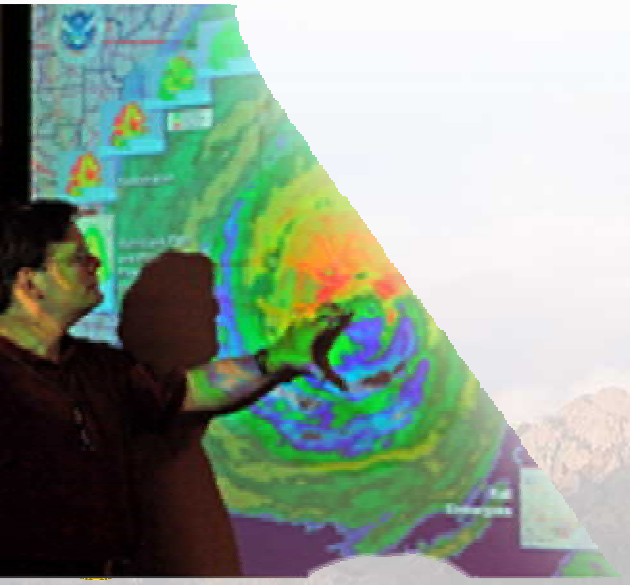
| SNL Site | Buildings and Trailers | Offsite Leases | Gross Square Feet |
|---|---|---|---|
| Albuquerque, NM | 855 | 9 | 6,255,960 |
| Livermore, CA | 73 | 1 | 886,177 |
| Tonapah Test Range, NV | 98 | – | 127,422 |
| Kauai Test Facility, HI | 54 | – | 57,560 |
| Other SNL Sites | – | 14 | 79,032 |
| TOTAL | 1,080 | 24 | 7,406,151 |

# Utilities – SNL/NM Site Only

| | |
|---|---|
| High-Voltage Electrical | 115kV and 46kV distribution lines 17.2 miles<br>115kV/12.47kV and 46kV/5kV substations 14<br>115kV/46kV switching station 1<br>5kV/15kV underground distribution 55 miles<br>600kW standby generators 4 |
| Water and Fire Protection | 70 miles of line; 325 fire hydrants; 1,000 gate valves; 300 PIVs; 3 tanks; and a pumping station |
| Sanitary Sewer | 41 miles of underground pipe, 550 manholes, 3 permit monitoring stations |
| District Chilled-Water System | Includes all chilled-water systems supporting multiple buildings. Approximately 23,500 tons of cooling and 5 miles of underground pipe. |
| Facilities Control System | Centralized control system with 200,000 + control points |
| Gas | 14 miles of distribution line and 210 valves |
| Roads | 31 miles of paved roads, 58 miles of unpaved roads, and 140 acres of other paved surfaces |
| Communications | 34 miles of underground duct-bank and 260 communication manholes |
| Storm | 21 miles of pipe and channel, 280 manholes, 560 catch basins, and 10 detention basins |

# FMOC People

- Employees 158
- Staff Aug. Contractors 63
- Represented Craft 139
- Represented Custodial 89
- Students 8
- Total FMOC Workforce 457
- Onsite Construction Contractors 1,500



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# Facility Management System (FMS)

- We identified the need for a single overarching Integrated Workplace Management System (IWMS) that would enable us to focus on customer missions and improve FMOC processes.
- Our team selected highly configurable commercial-off-the-shelf (COTS) software with out-of-the-box workflow processes that integrate strategic planning, project management, facility assessments, and space management, and can interface with existing systems, such as Oracle, PeopleSoft, Maximo, Bentley, and FileNet.
- We selected the Integrated Workplace Management System (IWMS) from Tririga, Inc.
- Needed to integrate with current Asset Management System MAXIMO

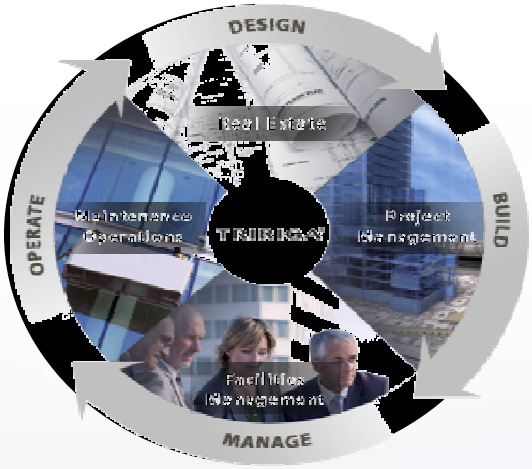
# Facility Management System (FMS)

- FMS Benefits:
  - Create a single reliable source for facility data.
  - Improve transparency with oversight organizations.
  - Streamline FMOC business processes with a single, integrated facility-management tool.
  - Give customers simple tools and real-time information.
  - Reduce indirect costs.
  - Replace approximately 30 FMOC systems and 60 homegrown tools (such as Microsoft Access databases) .
  - Integrate with FIMS.

# Facilities Management System

Tririga, Inc.

- **Integrated Workplace Management System (IWMS) includes:**
  - Facilities Management
  - Project Management
  - Maintenance Management
- **Facilities Need of the Tririga IWMS:**
  - Provide customers with a simple & integrated Facilities tool
  - Replace multiple legacy systems in Facilities
  - Streamline Facilities business processes
  - Interface with existing Corporate systems
  - Interface with existing Facilities legacy systems
  - Primary tool for Facilities to manage work activities



# Facility Management System

## Project Expectations

- Software will be deployed without customization.
- FMOC business processes might require revisions.
- The project will be deployed in phases.
- An early version of user acceptance testing of the working system will occur.
- Quality is the highest project management priority.
- A Change Control Board will be established.
- The new system will retire many existing FMOC systems.

# FMS – Modules Purchased

- Facilities Management
- Projects Management
- Operations and Maintenance Management
- Facilities, Projects, and Operations and Maintenance Workplace Performance Management (WPM)
- Tririga Offline
- Tririga Real Estate and Environmental Sustainability (TREES)

# What is different now?

- **Customers and SMEs can now perform spatial analysis.**
  - Space drawings are available at the desktop.
  - Drawings can be configured to show the following:
    - Vacant, occupied, and common spaces
    - Current organizational ownership
    - Single organization ownership
- **Many manual operations were replaced by workflows.**
  - Space charge
  - Space requests and changes
  - Utility allocations
    - **It's still new … adjusting to changes.**
      - **Retired several applications.**

# Building Information in Tririga

Building > 802 - Windows Internet Explorer

Building > 802 | Print Preview

General | Contact Details | Graphic | Area Measurements | Contracts | Assessment | Maintenance | Reserve | FIMS | Lease | Environmental | Notifications | Notes & Documents | System | GIS

Work Flow Instance | Includes | Reports | Associations | Audit Actions

(Required): General Information for this Building. Revise | Retire |

**General**

| | | | |
|---|---|---|---|
| ID | 1000464 | Status Active | Image |
| * Name | 802 | | |
| Description | Building No. 802 - Administration & Headquarters Building of the Sandia National Laboratories and the United States Department of Energy. The building is located in the west sector of TA-I. It is bordered by G Ave. on the north, H Ave. on the south, 7th St on the east and 5th St [bldg. 800 & 801] on the west on the Sandia National Laboratories site Albuquerque, New Mexico. Built in 1951, this four-story concrete building with a full basement level contains 161,275 square feet of administration space. The building is situated on a flat land parcel and resides within the high security portion of the Sandia TA I | | |
| Hierarchy Path | \Locations\SNL - New Mexico\802 | | |

**Details**

| | | | |
|---|---|---|---|
| Legal Name | ADMIN & DEV LAB | | |
| Common Name | W010802/PRMY/S&S | | |
| Parking Spaces (Open) | 0 | Parking Spaces (Covered) | 0 |
| * Tenure | Owned | | |
| Primary Use | | | |
| * Building Type | Building | | |
| Zoning | | Jurisdiction | |
| Time Zone | (GMT -7) Mountain Time (US, Canada) [US/Mountain] | | |
| FIMS? | ☑ | Include in Space Audit? | ☑ |
| SNL Area | 001_Area I | | |
| Floors | 5 | Floors Below Grade | 1 |
| Number of Buildings | 1 | Number of Trailers | 0 |
| Land Use Permit | | | |
| Limited Area? | ☐ | | |
| As Used Capacity | 411 | As Designed Capacity | 410 |
| Secure Area? | | | |

**eLocation Site**

Name

**Environmental Details**

| | | | |
|---|---|---|---|
| Carbon Calculation Method | | Carbon Calculation Region | |
| Total C02e (Carbon Footprint) | 0 US Tons CO2 | Certification Level | |
| Total C02e (Carbon Footprint) Equity Share | 0 US Tons CO2 | Equity Share (Percent) | 100 |
| Occupancy Rate (Percent) | 100 | Total Area Occupied | 0 square-feet |

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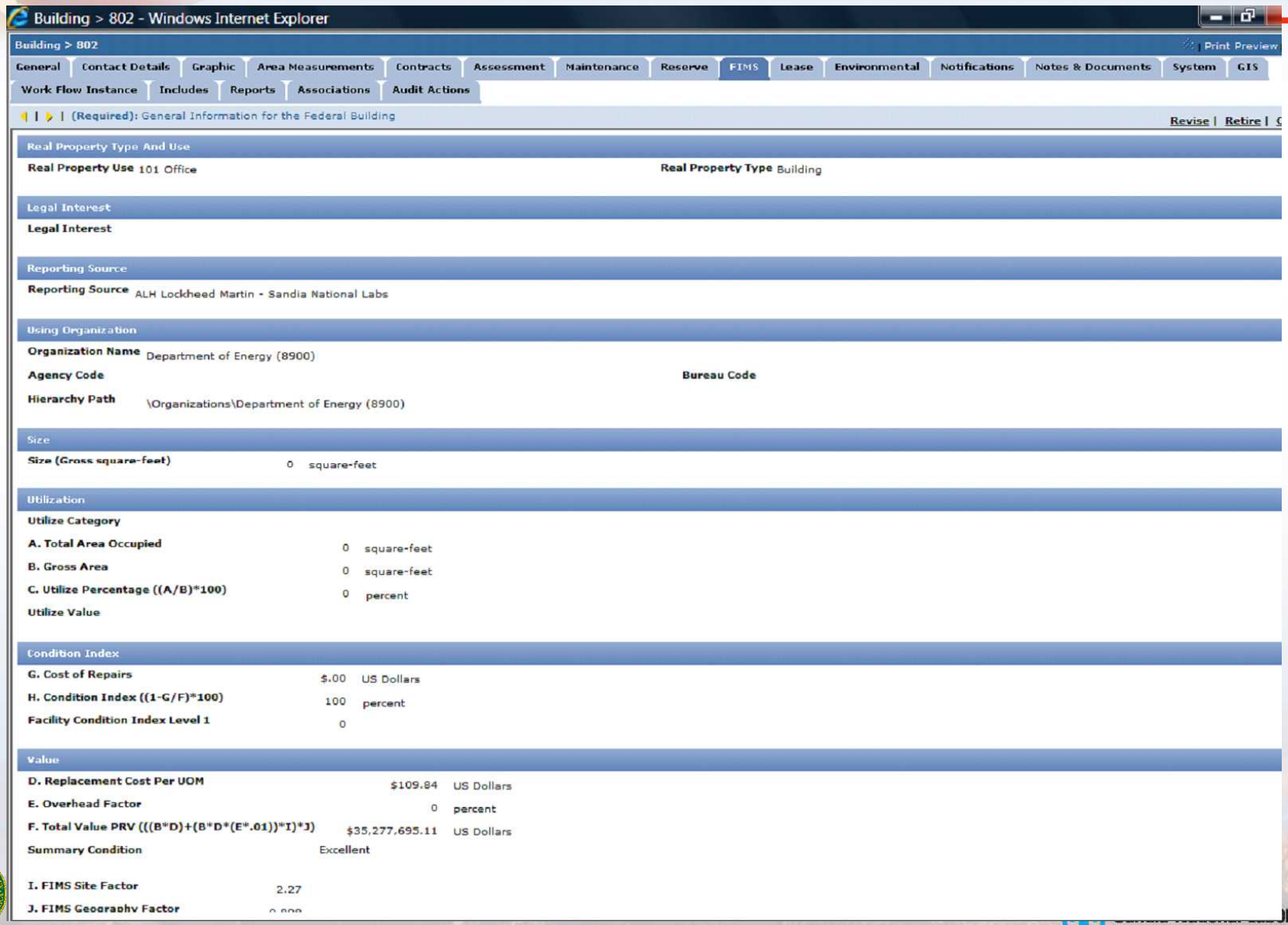
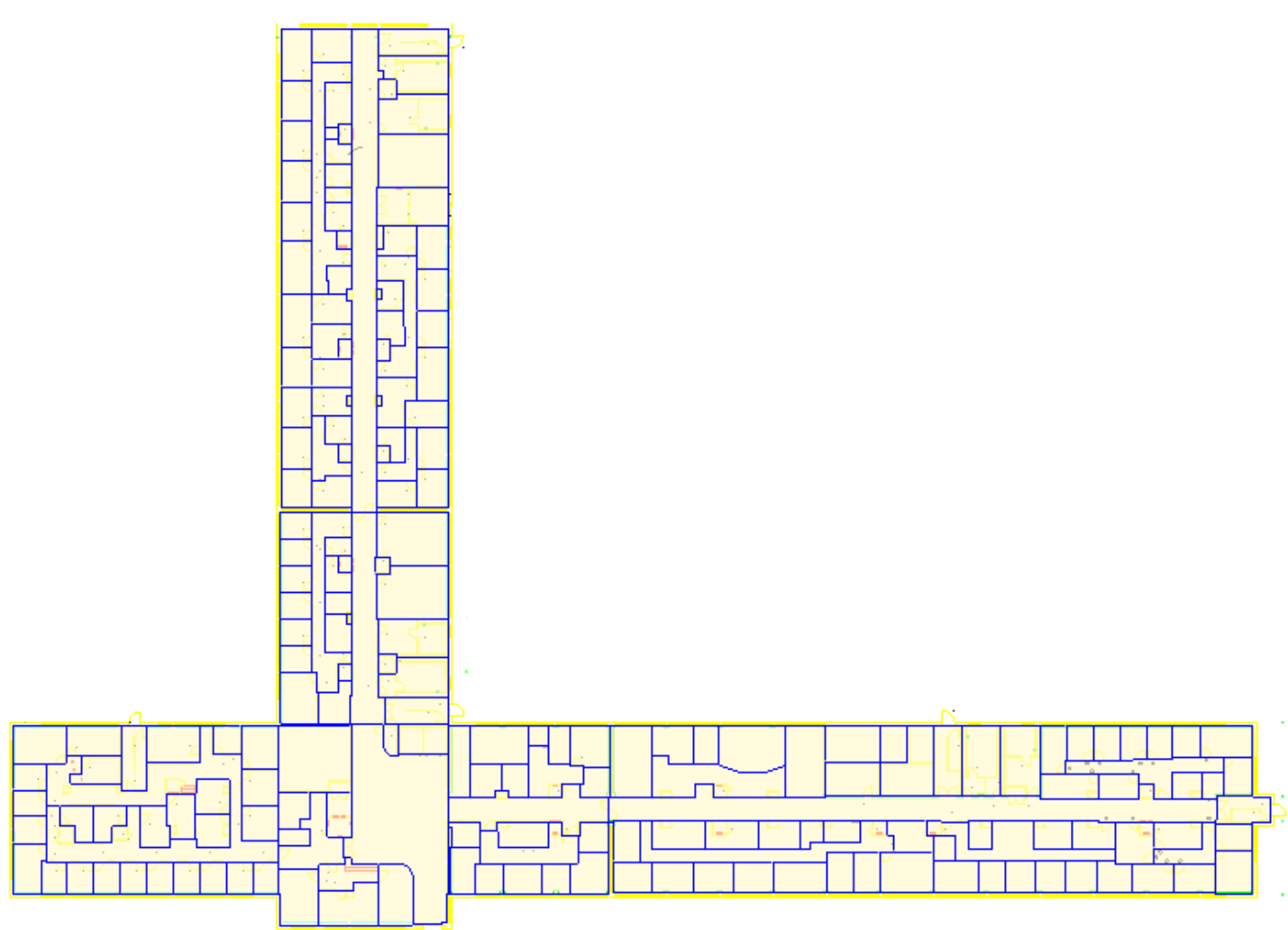
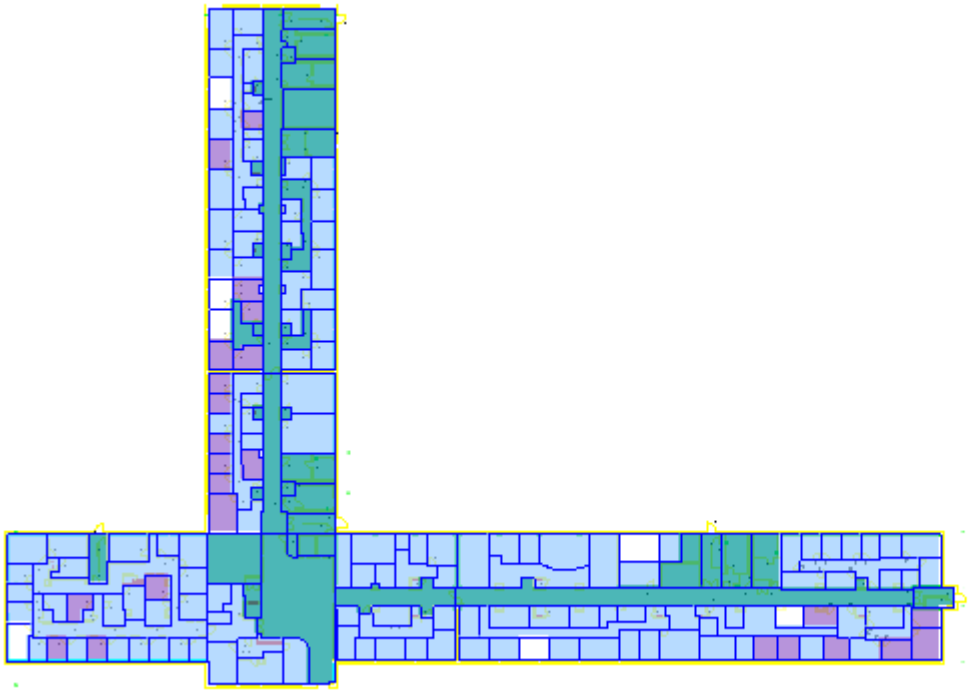
# FIMS Information in Tririga



# Building 802, First Floor

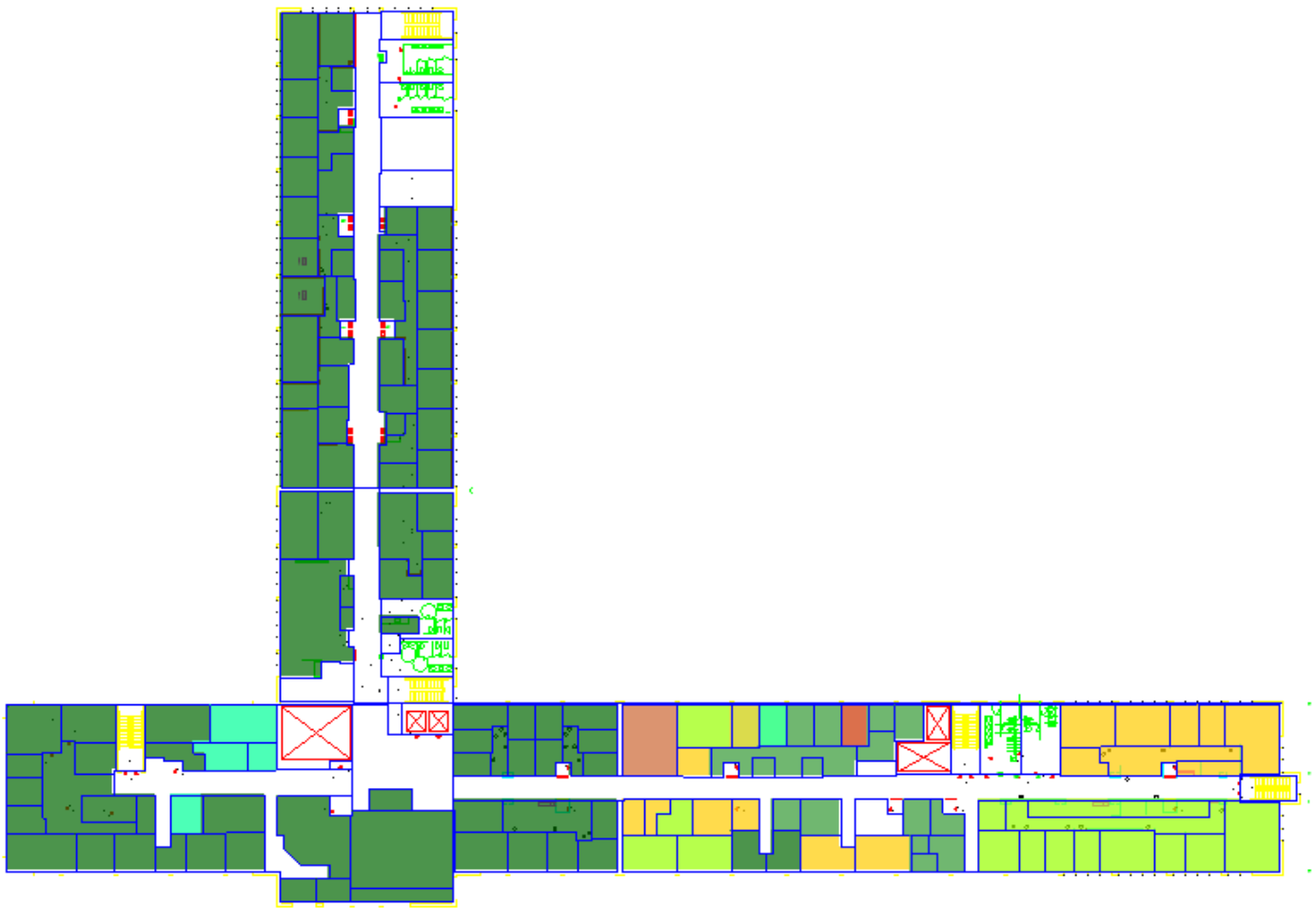


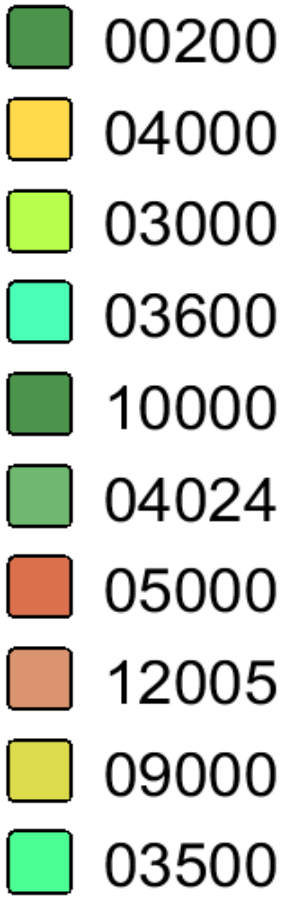
# Building 802, First Floor, Occupancy



Vacant Common
Vacant
Occupied
Over Allocated
Partially Occupied

# Building 802, First Floor, Org. Use





# TREES – Carbon Footprint



## TRIRIGA Real Estate Environmental Sustainability for Federal Government

Achieve agency environmental sustainability objectives through reduced energy consumption and emissions production from real property assets and operations in accordance with Executive Order 13423

# What have we learned?

- **Don’t eat the elephant in one bite.**
  - Pick one or two processes to focus on first.
  - Integration gaps (moves and space) will exist.
  - Focus on product quality in first modules.
- **Don’t underestimate project size and scope.**
  - IT projects are not performed routinely.
  - You need specialists in project management, data management, and IT in addition to subject matter experts.
- **Know your processes. (Learn the out-of-the-box process.)**
  - Having documented processes is invaluable.
  - You never have enough process detail.
  - Be willing to change to the supplied process.

# What have we learned?

- **Every requirement is a chance for change.**
  - Challenge everything that currently exists.
  - Current requirements reflect old processes.
  - Out-of-the-box tools might help improve processes.
- **Change Control Boards work wonders.**
  - Establish decision-making processes and authorities early.
  - Have the management will to follow the change control process.
  - Make it difficult and well thought out to proceed.
- **Determining the schedule is the hardest project criterion.**
  - Many variables are hard to determine in advance.
  - Hidden issues show up after the design is complete.
  - Integration with other systems always causes delays.

# What have we learned?

- **The triad (IT, Vendor, and User) is key.**
  - It's the team!
  - Meet early and often; have a structured meeting to focus.
  - Management involvement is **essential**.
- **Communicate, communicate, communicate, and then communicate some more.**
  - Develop a *Project Communication Plan*.
  - Include Communication Specialists.
  - Include users at various stages.
- **Perfection is the enemy of implementation.**
  - Problems will occur during implementation.
  - Plan for SMEs and others to be available.
  - Infiltrate the users early and often.

# Where are we Today?

- **Implemented first Modules August, 2010**
  - Portfolio
  - Space Management
- **Interrupted Schedule to upgrade to new Platform and Application in 2011**
- **Next in Line**
  - Projects
  - Moves
  - Assessments (energy, condition, and fire protection)
  - Real Estate
  - Tririga Off-Line
- **Last in Line**
  - TREES

# What lies in the future?

## More integration of systems

- Where can we fit Building Information Modeling (BIM) into an IWMS?
- Mobile tools for inspections and workers
- Tracking of laboratory chemicals and products
- Radio-Frequency Identification (RFID)?
- Adding information from rooms to buildings, such as chemicals
- Fleet
- Travel (sustainability measures)
- Facilities Control System
- Assets to geospatial Locations

# Recap

- The City of SNL
- Our strategic intent and the IWMS
- Good project management
- Where we are
- A look into the future

# End