



Sandia National Laboratories

ROAD TO EVMS CERTIFICATION

Lessons Learned & Path Forward

By
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Outline

- **Sandia Who? What?**
- **EVMS – Common definition**
- **The Certification Process**
- **Our Lessons Learned**
- **Sandia's PPM Path Forward**



Sandia Who?...What?

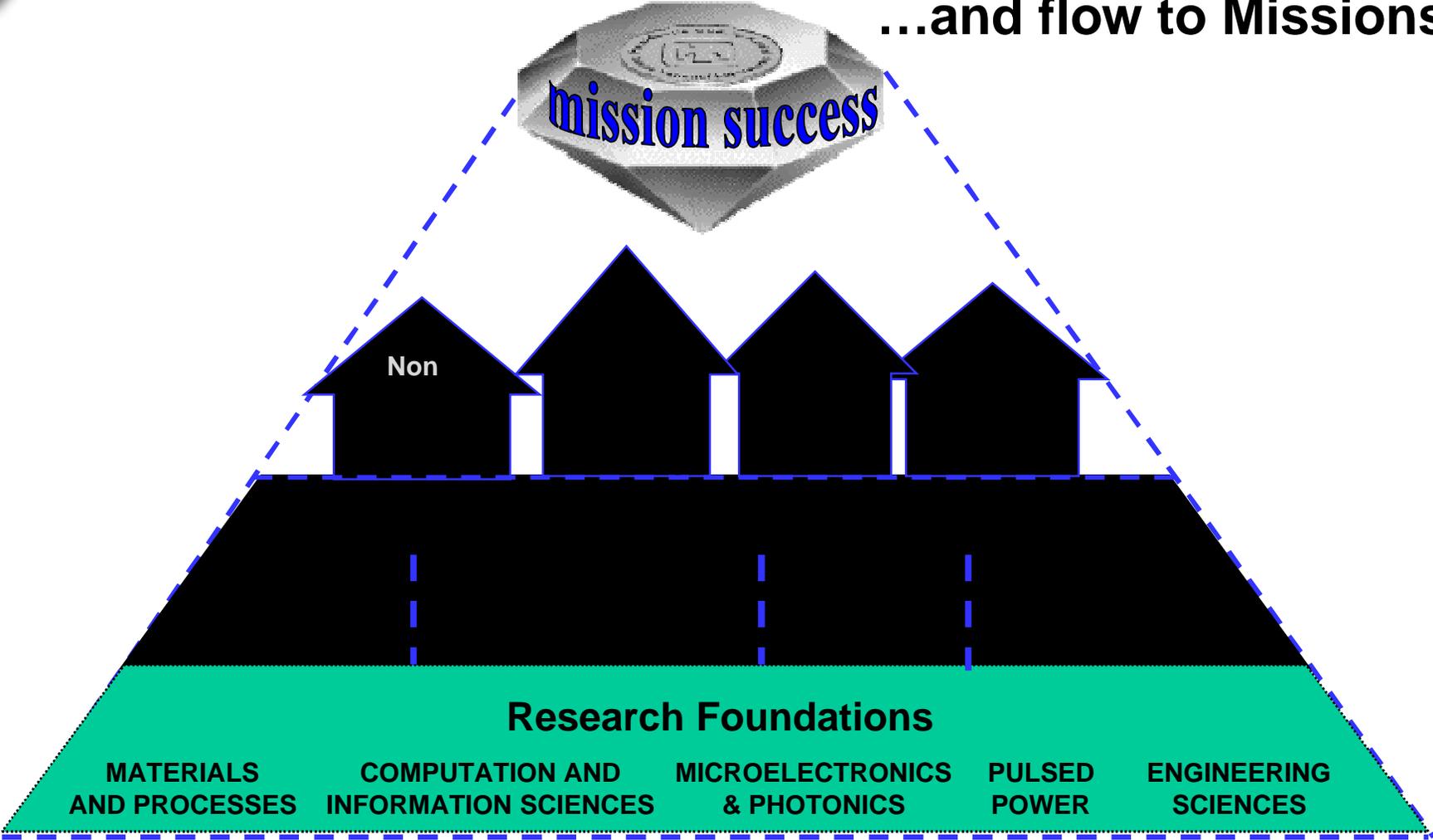
**Sandia National Laboratories is a Department of Energy
Multidiscipline Facility
Run by Sandia Corporation,
a Lockheed Martin Corporation Company
8122 Employees \$2B Annual budget**





Five areas form Sandia's science base

...and flow to Missions



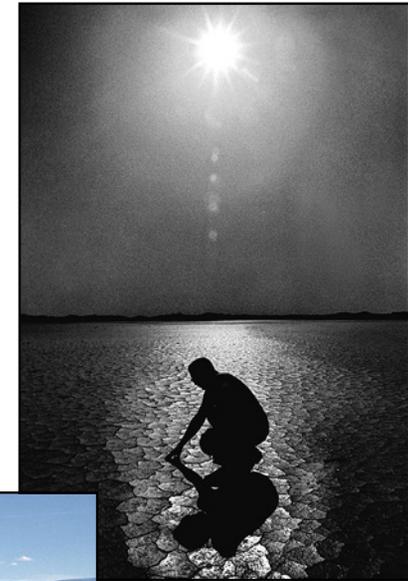


**Our primary sites are
in New Mexico and California
Additional sites in Texas, Hawaii, and Washington D.C.**



**Livermore,
California**

**Albuquerque,
New Mexico**



**Tonopah,
Nevada**



800 Buildings – 200 Major Structures



SNL Facilities PPM Project Performance Management – Why?

- ü Provides project, director, and DOE/NNSA management with objective, timely, and comprehensive insight into project progress.
- ü Integrates requirements/scope, schedule, and cost objectives; establishes a baseline plan for accomplishing program/project objectives; and applies appropriate earned value techniques for performance measurement during the execution of a project.
- ü By combining advance planning, baseline maintenance, and earned value analysis provides a measure of accomplishment, cost/schedule performance metrics, and predictive metrics.



Why a Certified EVMS System?

- DOE/NNSA is moving to requiring an Earned Value Management System (EVMS) system certified by the Defense Contract Management Agency (DCMA)
 - ü This is tied to ANSI/EIA Standard 748-A which outlines 32 guidelines for an EVMS.
 - ü DCMA has Congressional Confidence
- Sandia's CFO, Frank Figueroa, offered the SNL construction program as a pilot for DOE/NNSA certification (where required on Line Items >\$20M)
- ***PPM is the right way to manage projects.***



What is an Earned Value Management System?

EVMS = Project Performance Management System

- Plan all work scope for the program/project to completion.
- Break down the program/project work scope into finite pieces that can be assigned to a responsible person or organization for control of technical, schedule, and cost objectives.
- Integrate program/project work scope, schedule, and cost objectives into a Performance Measurement Baseline plan against which accomplishments may be measured.
- Control changes to the baseline.

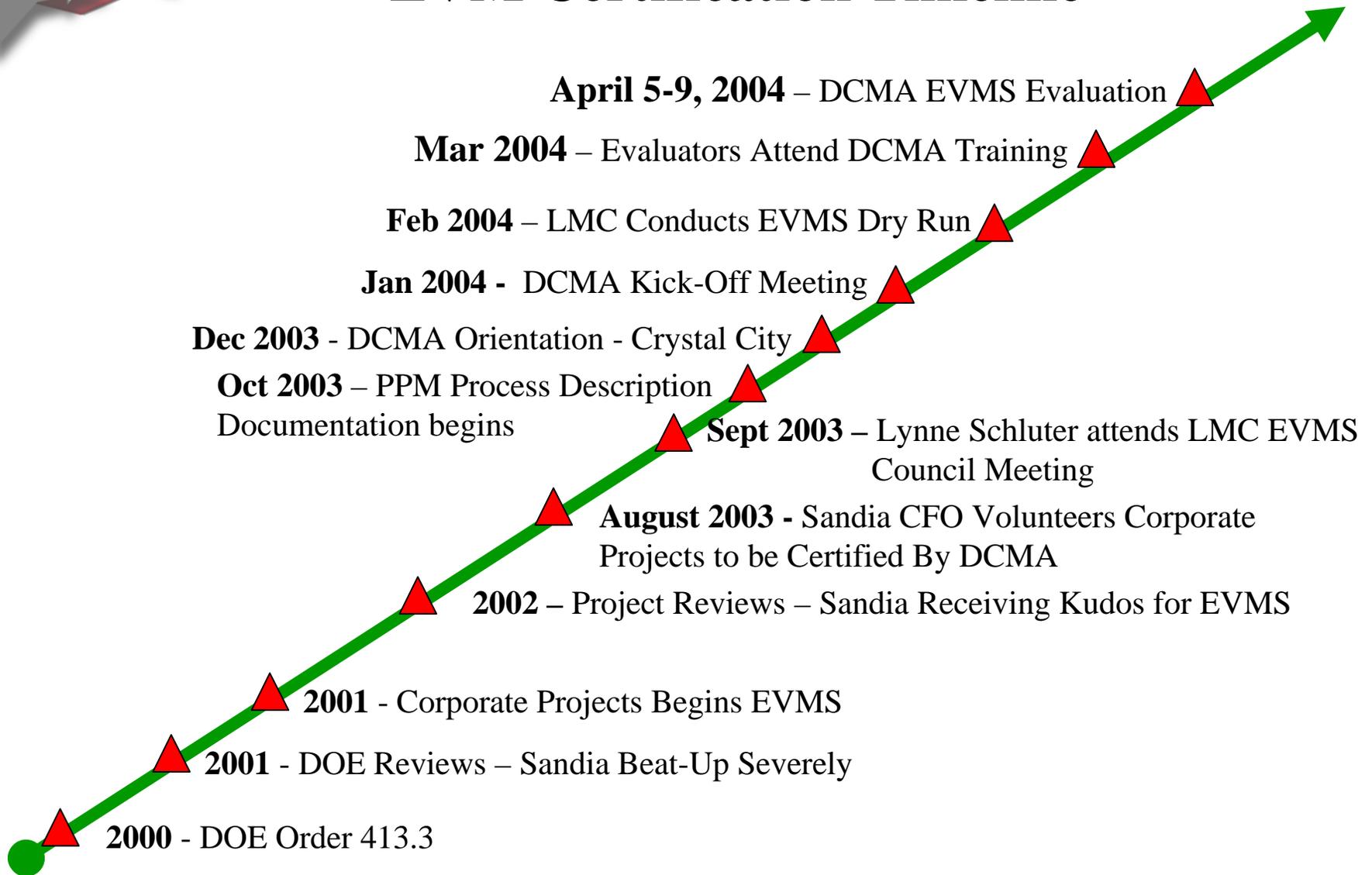


EVMS- More Details

- **PPM content includes:**
 - ü Cost Estimates
 - ü WBS – Work Breakdown Structure
 - ü OBS – Organizational Breakdown Structure
 - ü RAM – Requirements Assignment Matrix
 - ü Integrated, time-phased plan – baseline schedule
 - ü Work Authorization/Control Account and Manager
 - ü Cost Accumulation – Financial system
 - ü Analysis and Management Reports (Status)
(Includes Variance Analysis and EVMS Data)
 - ü Management Actions
 - ü Baseline Change Control (BCC) Process
 - ü Training
 - ü Surveillance



EVM Certification Timeline





PPM Development Team





PPM Team- Tasks

- **Develop SNL Policy Statement (We leveraged LMC CPS-026)**
- **Document current processes (MESA, Corporate Projects, SNL-CA) and determine areas of agreement and gaps**
- **Develop future-state process**
- **Map process to ANSI requirements**
- **Analyze current projects (Self-Assessment)**
- **Training**
- **Review led by DCMA with OECM & LMC members (5-9 APR 04)**
- **Rollout of PPM Process to Facilities Projects < \$20 Million**



Assistance - LMC Resources

- **LMC has experience (Earned Value Management Council) and an advance agreement with DCMA (LMC CPS-026, Program Performance Management)**
- **LMC experience with established processes and tools at other sites**
- **LMC developed tools and training which are available for Sandia use.**



Microsystems Engineering and Sciences Applications Project (MESA)



Total Project Costs:

\$519 million

Status:

Micro-Fab and Micro-Lab are in Construction

WIF construction bids in FY04

- Provides facilities & equipment to enable design, integration and qualification of microsystem components
- Three facilities (MicroFab, MicroLab & WIF), associated infrastructure, utilities & retooling of MDL
- Total of 391,000 sf for 648 personnel



Center for Integrated Nanotechnologies (CINT)



Total Project Costs:

\$57 million

Status:

Construction Contract
ready to award

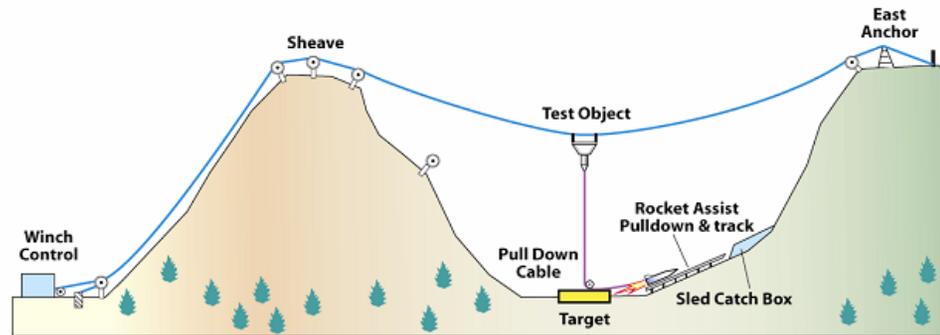
- New Laboratory & Offices
- 96,000 GSF on 20 acres

Preparing for the future of nanoscience and nanotechnology



Test Capabilities Revitalization (TCR) Phase I

Aerial Cable Facility Schematic



Total Project Costs:

\$47 million

Status:

Construction Contracts
recently awarded

- Refurbish Aerial Cable Site
- Build new Burn Facility





About the Review

- Led by DCMA
- 12 Reviewers
 - (2 DCMA, 4 LMC, 2 NNSA Site, 1 OECM, 3 NNSA Program)
- 4 ½ days
- Five Sub-Areas
 - Organization
 - Planning, Scheduling & Budgeting
 - Accounting
 - Analysis & Management Reports
 - Revisions and Data Management
- Interviewed Project Managers, Cost Account Mangers, Project Controls, Schedulers and Management



How Findings are Organized

- Corrective Action Request (CAR)
 - Major CAR
 - ü Systemic noncompliance OR
 - ü Significant impact to reporting
 - Minor CAR
 - ü Limited scope noncompliance AND
 - ü Minor impact to reporting
 - Continuous Improvement Opportunity (CIO)
 - Observations for Process Improvement
- Requires Written CAP
- Does Not Require Response



Closure/Certification

- **Close all CARs**
 - *Review Team issues CARs*
 - *Sandia submit Corrective Action Plan*
 - *Review Team disposition the Plan*
 - *Sandia implementation the correction*
 - *Review Team verification*
- **Final Report**
- **Acceptance Letter to NNSA**
- **NNSA “Certification”**



Sandia Results

Major CARs: 0 Minor CARs: 2 CIOs: 6

Administrator Brooks:

I thought you would want to know that the Department's first review to "certify" our contractors' use of EVMS as an integral management tool, done last week at Sandia National Lab, went extremely well. In fact, it would seem that for the three projects for which Sandia's use of EV was evaluated, Sandia might have set a very high "bar" or benchmark for all the others to emulate.

Recall we use the Defense Contract Management Agency for this evaluation process. They had 2 people to lead the team. There were four Lockheed Martin corporate level people, one OECM person, and the rest of the feds were NNSA people (one of whom was from your NIF team).

There were **no significant corrective actions** identified for the three projects reviewed*. In the view of the DCMA team leader, this was an almost unheard of outcome from a field visit. The use of EV as an integral management tool for MESA plus two other projects was the subject of the evaluation. It is expected that with Sandia's resolution of the few minor items, "certification" will be forthcoming shortly thereafter.

I believe this is worthy of a significant "BZ" to both NNSA, as the first out of the box, and to Sandia and Lockheed Martin.

Jim Rispoli



Sandia National Laboratories
ROAD TO EVMS CERTIFICATION
Our Lessons Learned



Barriers – Real or Perceived

- Ø *Politics will Complicate Your Efforts*
- Ø *DOE process does not equal DOD process*
- Ø *Sandia's culture – Research & Development*
- Ø *Language barrier*
- Ø *This is a first for:*
 - ü *Sandia National Laboratories*
 - ü *Department of Energy*
 - ü *DCMA Evaluation of a DOE Site*



General Lessons Learned

Ø ***Don't Re-invent the Wheel!***

- ü Use Lessons Learned from other Companies – INVALUABLE!
- ü Duplicate success, adapt to YOUR company; It's Your Process!

Ø ***Get a Mentor - Immediately!***

- ü LMC assistance throughout process critical to success.

Ø ***Get Champions – NOW!***

- ü Sandia has 2 Champions
 - Administrative – Frank Figueroa, VP & Sandia CFO
 - Technical – Don Cook, Sandia Program Director
- ü Perceived barriers disappeared.
- ü Champions pulled – we did not have to push!

Ø ***Team Composition is Key!***

- ü Spend your time getting team together.
- ü Get expertise in all areas. Go for doers; avoid the “tourists”



Process Lessons Learned

- Ø ***Create and Maintain Team Vigor***
 - ü Plan Your Kick-off Meeting well to Create Commitment
 - ü Conduct weekly meetings
 - Assign ALL action items with due dates every week
 - Always communicate progress and concerns – your team will help.
 - Praise in public (Often) - Criticize in private (Respect)
 - ü Remind yourself that you need to get the team to Performing.
- Ø ***Assign a Technical Writer as a Part of the Team at the Start***
 - ü This one thing will save enormous time and effort.
- Ø ***Use an Electronic Shared Folder – Priceless...Paperless***
 - ü Contains meeting minutes w/action items; team input data, resource data, and every iteration of the PPM Process Description to show how we got to current point.
 - ü Expedites reviews and comments (But be careful).
 - ü Everyone views the exact same documentation.



Process Lessons Learned - Continued

- Ø **Create a Baseline**
- Ø **Develop Aggressive Milestones to Challenge Team**
- Ø **Develop a Common Language Early**
 - ü DOD and DOE are Different!
- Ø **Pictures are Great...Possibly Essential.**
- Ø **Patience is a Virtue**
 - ü Rome wasn't built in a day...neither was a PPM Process Description
 - Ensure Team has Time to Absorb the Data/Process
 - "You want it bad...you'll get it bad"
- Ø **"When it Comes to Teams, Tell Everybody Everything, All the Time".**
- Tom Peters
- Ø **Practice, Practice, Practice**
 - ü LMC Led Dry Run Will Prove Critical to Sandia's Success.
 - ü CAM Training
 - ü Strive for Consistency



Sandia National Laboratories
ROAD TO EVMS CERTIFICATION
The Path Forward



Corporate Projects PPM To Do List

- Ø **Roll Out PPM Process to Construction Projects < \$20 Million TPC**
- Ø **Continue Roll Out to All Sandia Projects (Beyond Facilities)**
- Ø **Implement/Expand/Improve training:**
 - ü **(Fundamentals, Detailed CAM, Management, & New Hire)**
- Ø **Improve on-going surveillance process.**
- Ø **Continuous Improvement**
 - ü **Operational Project Management Maturity Model (OPM³)**



Contact Information



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