



Supporting Sustainability with CMS

13th Annual Chemical Management
Services Workshop

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October 12, 2010



THE LABORATORY

SLAC National Accelerator Laboratory is home to a two-mile linear accelerator—the longest in the world. Originally a particle physics research center, SLAC is now a multi-program laboratory for photon science, astrophysics, and accelerator and particle physics research. Six scientists have been awarded the Nobel Prize for work carried out at SLAC, and the future of the laboratory promises to be just as extraordinary.



SLAC Facility – The Numbers

- 430 acres
- 500+ buildings
- 242 Delivery locations
- 463 CMS users (requesters, approvers, viewers)
- Annual chemical spend \$1.5 million

2010	Gas	352,736	2009	Gas	507,275	2008	Gas	496,010
	Chemicals	498,177		Chemicals	626,043		Chemicals	746,971

CMS Program: Initial Driver

- (1999-2001) New regulatory requirements for facility-wide tracking of chemical usage (Air Quality Management)
- (2001-2002) Participation in Silicon Valley Chemical Management Services Pilot Project



CMS Program: Current Driver – EO 13514

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed by the President on October 5, 2009.

- Builds on EO 13423 Strengthening Federal Environmental, Energy, and Transportation Management, which remains in effect.
- DOE in process of combining Orders 450.1A and 430.2B
- EO 13514 is intended "to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies."
- The new E.O.:
 - establishes GHG emission reduction as an overarching, performance metric for all Federal agencies



President Barack Obama participates in the CEQ Executive Order signing in the Oval Office, Oct. 5, 2009. (Official White House Photo by Pete Souza)

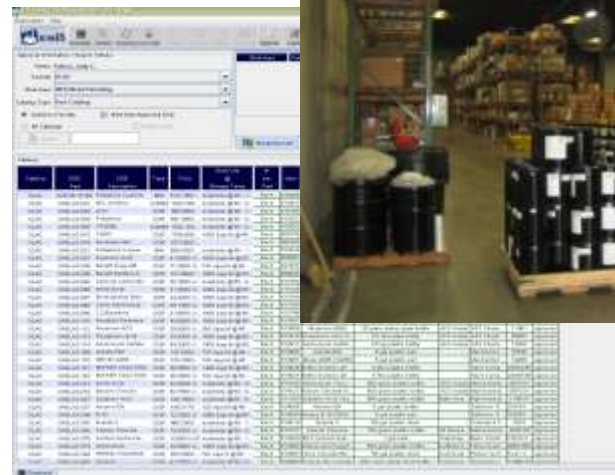
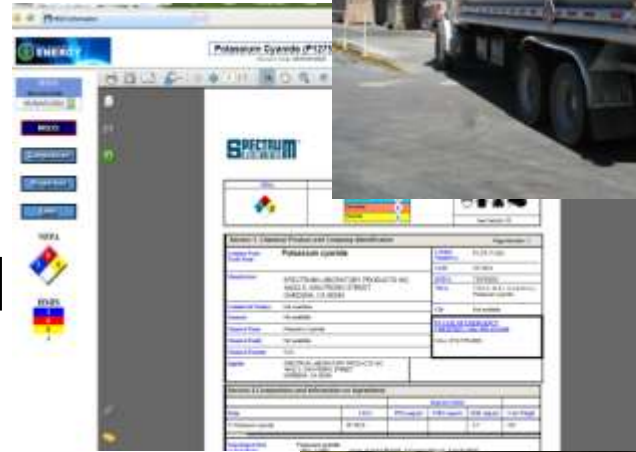
CMS Program: Current Driver – EO 13514

- Current DOE Orders establish Environmental Management Systems (EMS) as the framework for implementing sustainable practices
- DOE adopted goals to develop sustainable pollution prevention practices and to reduce using chemicals that are toxic, hazardous and contribute to green house gas (GHG) emissions
 - Increase source reduction of pollutants and wastes
 - Reduce and minimize the acquisition, use, and disposal of hazardous chemicals and materials
 - Green purchasing (designated bio-based content products, non-ozone depleting substances, non- or less toxic materials)



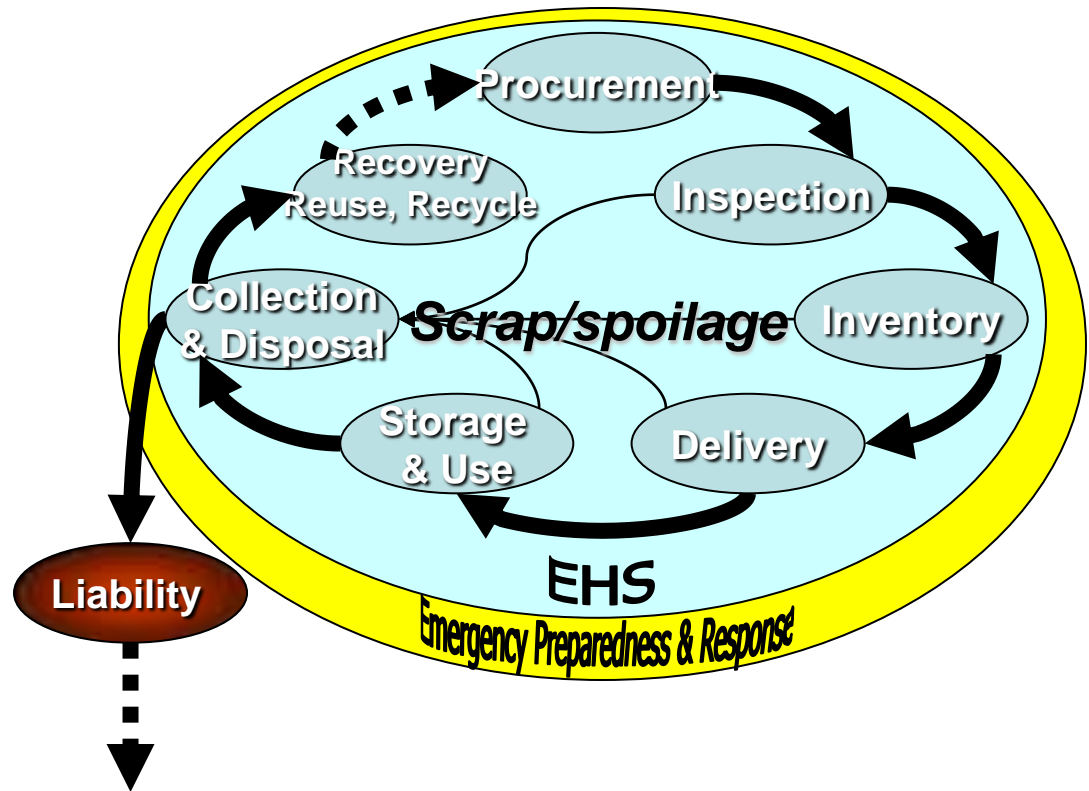
Services and Scope of CMS Program

- Current services include:
 - e-Commerce
 - On-line catalogue
 - JIT logistics
 - Off-site, vendor managed inventory
 - Point-of-use delivery
 - MSDS Management
 - ESH reporting platform
 - Incentives for cost and waste reduction

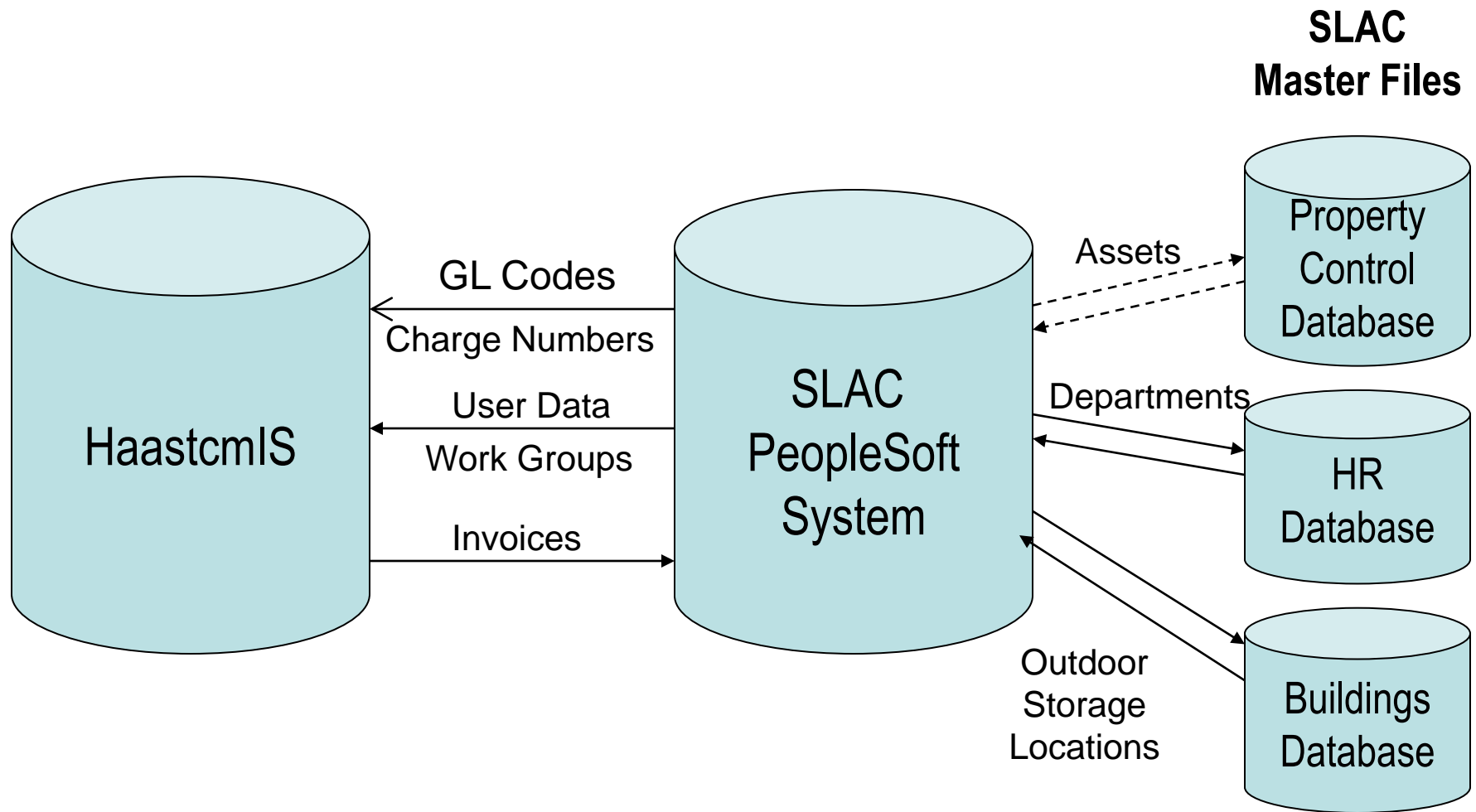


Supporting Sustainability

- What is sustainability
- Must know the system to control the system
- Importance of metrics



Data Integration



Centralized Data Management in HaastcmIS

Chemical Management Services (CMS)

System Links

- [Haas from SLAC start page](#)
- [MSDS Information](#) - contains all MSDS for chemicals on site at SLAC. Should be used for any active use.
- For potential purchase reference for chemicals not yet on site, use these [MSDS databases](#)
- [Buildings](#) - buildings on site with chemical locations (restricted access to SLAC)
- [Accounts Payables](#) - under Accounts Payables, Chemical Management System (CMS) - Links 2, 5, and 6 describe the financial integration between HaastcmIS and SLAC PS
- [System Administration](#) - under Accounts Payables, User Load, Link 3 describes the system administration tasks

MSDS Viewer

Material	MSDS No	Part Number	Trade Name	Manufacturer
04SLAC-005	04SLAC-005	Potassium Cyanide (Baker 3880; Mallinckrodt 6831)	Mallinckrodt Baker Inc.	
04SLAC-006	04SLAC-006	Sodium Cyanide	Mallinckrodt Baker Inc.	

Potassium Cyanide (Baker 3880; Mallinckrodt 6831)

POTASSIUM CYANIDE

1. Product Identification

Synonym: Potassium cyanide solid, hydrocyanic acid, potassium salt
CAS No.: 151-50-3
Molecular Weight: 65.12
Chemical Formula: KSCN
Product Code: 11-505-100
Mallinckrodt 6831

2. Composition Information on Ingredients

Deposited: _____ CAS No. _____ Percent: _____ Signature: _____

Report Function

- By regulatory list
- By chemical
- By field
- By work area, dock, or requester

Licensed to Department of Energy

Application Help

Chemical Orders Inventory Cat Add Waste Pickup Mgmt Shipping Reports Users Admin Stop Print Scr

Formatted Usage

Formatted VOC Usage

Formatted MSDS Revision

Ad Hoc Usage

Ad Hoc Material Matrix

Ad Hoc Usage

List **1910Air - 29 CFR 1910 Subpart Z -- Air Contaminants** View List

Single Chemical CAS Number:

All

Facility: **SLAC**

Work Area: **All Work Areas**

Dock: **Building 120**

Del. Pt: **Not Specified**

Material Category: **All Categories**

Part No: **is**

Mfg: **is**

Begin: **November** **1** **2007**

End: **October** **31** **2008**

Base Fields

Reporting Entity

Greenhouse Gas CO2 Equiv. (lb.)

Greenhouse Gas CO2 Equiv. Shippe

NFPA Flammability

Report Fields

NFPA Health

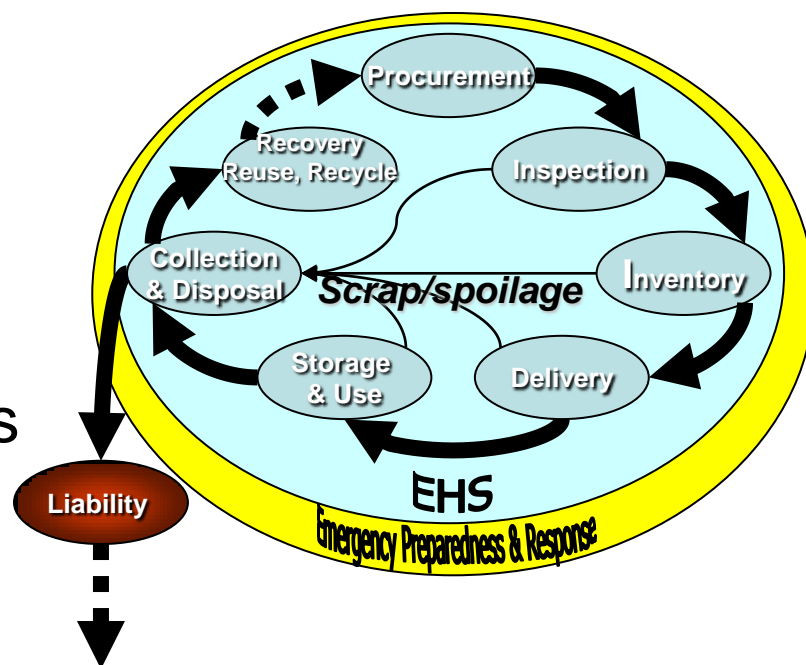
HMIS Health

Interactive Generation Batch Generation Rpt Name:

Refresh Open Template Save Template Generate Report

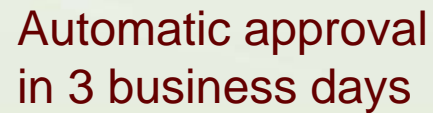
Chemical Reports

- Services
 - Work Area specific catalog
 - Order tracking capability
 - One day delivery- MM
 - Haas PO cycle time < 1 day
- Notables
 - Chemical Screening Process
 - “Greener Choice” identified
 - Nanomaterials identified



Chemical Screening Process

- Transparent criteria FY'09 EMS goal
 - ESH Manual
 - WPC e-tool
- Balance between user needs and review needs
 - 3 business day limit after which automatic approval
- Places accountability and control back into hands of line management
 - Toxic and Hazardous Material Justification Form



Greening the Catalog

- Product substitutions process
 - Vendor presentations to selected workgroups
 - Testing for performance
 - Approval for substitution within catalog
 - Bio-based materials
 - Cleaning products

Greener Choices

16

Application Help



Chemical



Orders



Inventory Cat Add



Views



Print



Reports



Users



Admin



Stop



Print Scr

Approval Information / Search Criteria

Name: **Fulton, Judy C.**

Facility: **SLAC**

Work Area: **Select a Work Area**

Catalog Type: **Part Catalog**

☒ Active for Facility

☐ Work Area Approved Only

☐ All Catalogs

☐ Active Only



greener choice

Add

Delete Line

Check Out



Shopping Cart



Catalog Add

Catalog

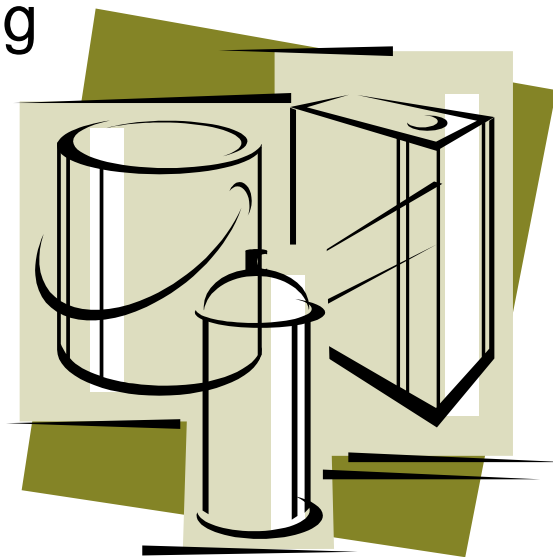
Catalog	DOE Part	DOE Description	Type	Price	Shelf Life @ Storage Temp	# per Part	Item	Component Description	Packaging	Grade	Manufacturer	Mfg Part No.	Status
SLAC	09DOE-51195	Greener Choices,	DOE	31.2750 U...		Each	559762	Simple Green Cle...	Bottle (packaged as 1 gal plasti...	Green Se...	Sunshine M...	11301	
SLAC	09DOE-51196	Greener Choices,	DOE	18.9450 U...		Each	559764	Simple Green Cle...	Bottle (packaged as 1 gal plasti...		Sunshine M...	11101	
SLAC	09DOE-51198	Greener Choices,	DOE	116.5500 ...		Each	559760	Clean Break GS FI...	Bottle (packaged as 5 liter plasti...	Green Se...	Consumer Br...	4428215	
SLAC	09DOE-51199	Greener Choices,	DOE	155.7000 ...		Each	559761	Niagra Floor Finish...	Box (packaged as 5 gal bag in ...	green Sea...	Consumer Br...	4428311	
SLAC	09DOE-52375	Greener Choices,	DOE	15.2000 U...		Each	560392	United 455 Liqui-Z...	Bottle (packaged as 1 quart pla...	Earth Smart	United Labs ...	455	
SLAC	09DOE-52376	Greener Choices,	DOE	36.3500 U...		Each	560394	United 13 Rip'N'Gri...	Roll (packaged as 20 foot roll (1...		United Labs ...	13	
SLAC	09DOE-52378	Greener Choices,	DOE	32.1700 U...		Each	560396	United 64 Bacfight...	Bottle (packaged as 1 gal plasti...	Earth Smart	United Labs ...	64	
SLAC	09DOE-52379	Greener Choices,	DOE	7.0500 USD		Each	560397	United 764 Micro...	Bottle (packaged as 2 oz bottle ...	Earth Smart	United Labs ...	764	
SLAC	09DOE-53496	Greener Choice,	DOE	23.9600 U...		Each	561959	Klean-Strip Boiled ...	Can (packaged as 1 gal metal c...		Klean Strip ...	QL045	
SLAC	09DOE-53596	Greener Choice,	DOE	9.4800 USD		Each	562418	Klean Strip Odorle...	Jug (packaged as 120 fluid oz i...		W.M. Barr & ...	GKG07...	
SLAC	09DOE-54897	Greener Choice,	DOE	26.9400 U...		Each	563659	Harmony Interior L...	Pail (packaged as 1 gal metal p...	Custom C...	Shenwin Will...	B9W951	
SLAC	09DOE-55978	Greener Choice,	DOE	3.4800 USD		Each	564310	Simple Green Nat...	Bottle (packaged as 32 fluid oz ...		Sunshine M...	12302	
SLAC	09DOE-56480	Greener Choice,	DOE	10.3300 U...		Each	564573	Supercor Green Cl...	Bottle (packaged as 1 quart pla...		Supercor Sp...	4500	
SLAC	09DOE-56481	Greener Choice,	DOE	9.0000 USD		Each	564574	Green Oxygenated...	Bottle (packaged as 1 quart pla...		Supercor Sp...	4503	

Chemical

- Pre-delivery inspection and bar-coding at Haas Hub
- Inspection on delivery by receiver
- Monthly Line Inspection
 - Chemical Storage Asset Custodian Program
- HazMat Field Verification Inspection



- Initial Baseline Inventory (Haas)
- Removed need to stockpile
- Inventory control and chemical screening
 - Limit quantity allowed to be ordered in a specified time frame
 - Limit type of material through screening
- Haas HMIS query tool
 - HMIS per building
- Order history per work group or requester
- Periodic Baseline Inventory

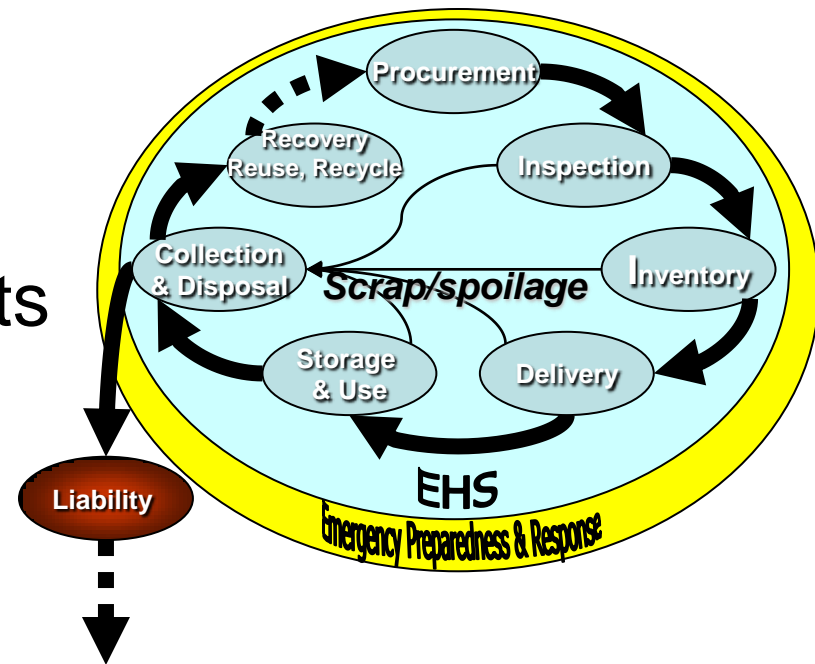


- Control of Receivers and Delivery Locations
- Delivery Safety Audits
- Direct delivery to work group



Storage and Use

- MSDS Platform
- Report Functions
 - NFPA ratings
 - MSDS version updates
 - Use and emission reports
- CMS map
- Secondary Labels



Recovery, Redistribution and Reuse

- Redistribution programs
 - On-site for non-laboratory products
 - Partnership with Stanford for laboratory chemicals except gases
 - DOE Materials Exchange
- Ability to search for other users if only a small quantity is needed



Future Directions

- More support in finding and verifying green product claims and performance
- Greater focus on tracking and reducing GHG
- More service support for making catalog adds, ordering and distribution of chemicals- better information control into the system

Summary

- ***“Our hardest competition was our previous way of doing business”***
 - *Government purchase cards*
 - *No measurement of service/delivery metrics*
 - *No contract administrators in the private corporation sense*
 - *Bias against lengthy service contracts*
 - *No sense of strategic partnerships*
- ***What did SLAC have going for it?***
 - *A hard and fast external driver*
 - *Lab-wide acknowledgement of “there must be a better way”*
 - *Committed laboratory director and ESH management leadership*
 - *Participation in the Silicon Valley CMS Pilot Program*
- ***What did SLAC gain?***
 - *Ability to centralize information and streamline process*
 - *Ability to modify controls to meet safety and financial requirements*
 - *A transparent system to all stakeholders*
 - *Ability to generate financial and ESH reports based on procurement data*
 - *Ability to screen and restrict chemical buys and tie into the work planning and control processes*
 - *Flexibility to add features such as “Greener Choice”*