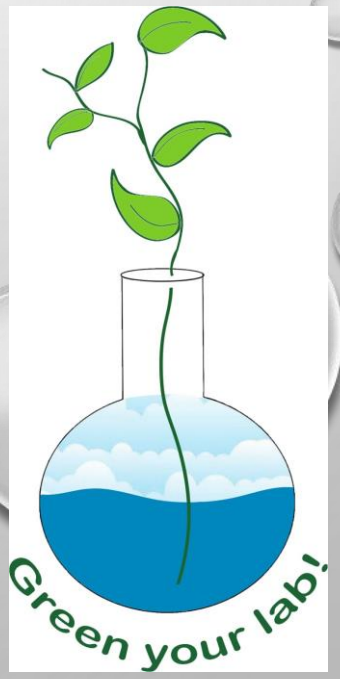
UTILIZATION OF INVENTORY DATABASE TO SUPPORT EFFICIENT USE OF CAMPUS CHEMICAL RESOURCES

UNIVERSITY OF COLORADO AT BOULDER

ROBERT AN

LINH TRAN

Environmental Health & Safety
UNIVERSITY OF COLORADO **BOULDER**



LEANING OBJECTIVES

- How EH&S Department at CU-Boulder is working to implement inventory system with a team of Temporary Employees and Students
- The challenges faced, accomplishments, and impacts that this system is already having on campus
- The potential benefits the system can bring to the researchers once it has been implemented campus-wide

BRIEF HISTORY

Labs were responsible for creating, maintaining and auditing inventories on an annual basis.

- Labs were in charge of managing every aspect of their inventory

Labs were asked to hand count and track every bottle within their inventories using an excel spreadsheet.

- The mechanism and tools provided were tedious and resulted in high error margins.

Resulted in labs not maintaining inventories with accuracy rates of 45% or less.

- This level of accuracy is unacceptable.

NEW PLAN

- Get done faster
- More accurate.
- Cheaper than your average grad/post doc.

EHS will now create new inventories for all labs across campus using students and temporary employees.

1

- Using barcodes provides a level of speed and accuracy not offered in the previous workflow.

Plan to barcode all existing chemicals and create a mechanism to barcode all incoming chemicals moving forward.

2

- Reduces the burden on labs while increasing data accuracy
- Gets the job done faster and cheaper.

As long as labs dispose of used barcodes and ensure that incoming chemicals have a barcode, EHS will audit your labs inventory on an annual basis.

3

NEW PLAN

Work Station

Labels and Bottles

ISSUES/CHALLENGES

Physical Task of Barcoding Campus

- Label Tack Level
- Freezers
- Desiccators
- Cold Rooms

ISSUES/CHALLENGES

Choosing what to inventory and what not too

Inventory Everything that has a CAS#

Did not inventory Buffers, Kits, Dilutions, Household items

ISSUES/CHALLENGES

Old Chemical Fallout

Found ALOT of:

Old Chemicals

Degraded Bottles

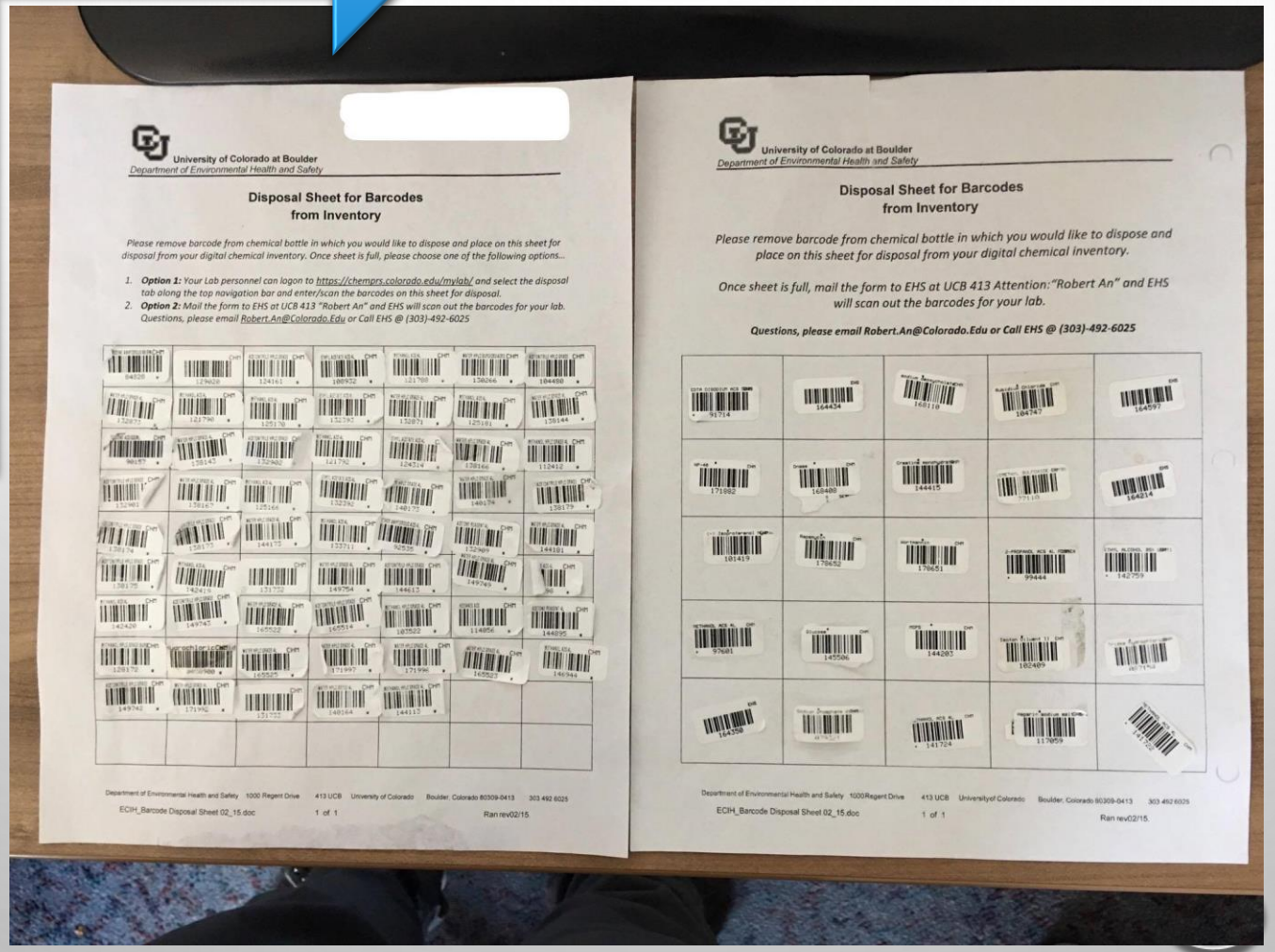
Lecture Bottles/cylinders

ISSUES/CHALLENGES

Creating a Culture Change That Sticks

Getting People comfortable with the Inventory Process

Getting People to dispose of barcodes when bottle is considered waste



ACCOMPLISHMENTS

July 16 - September 17 (14 months)

74,000+ Chemicals

1,200+ locations

SO, WHAT CAN WE DO WITH THESE NUMBERS?

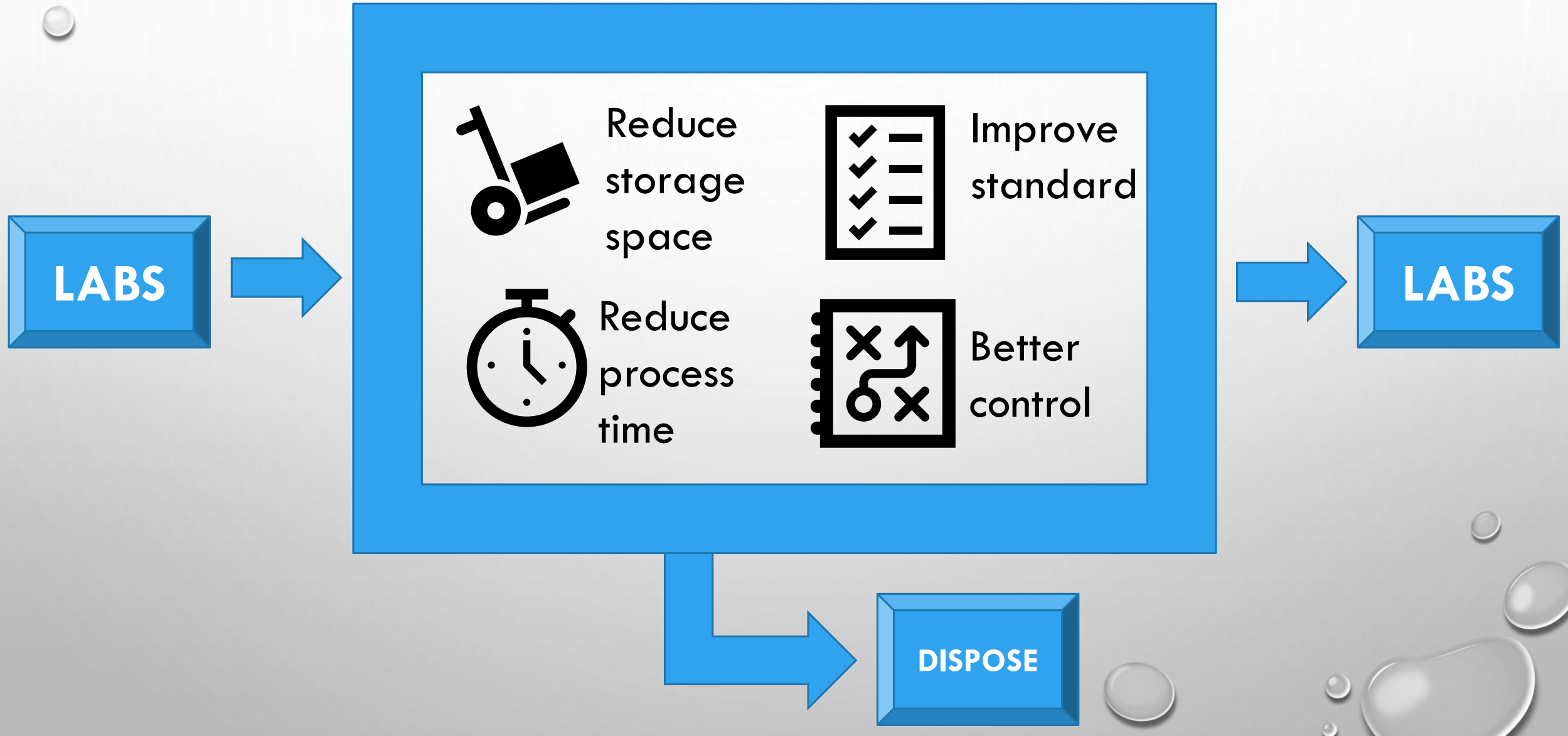
CHEMICAL REDISTRIBUTION

LABS

LABS

CHEMICAL REDISTRIBUTION

CHEMICAL REDISTRIBUTION



Current Example:

chemicals: 534

chemicals redistributed: 418 (78.3 %)

leftover chemicals (disposed): 116

Current Example:

chemicals: 179

chemicals redistributed: 39 (21.7%)

leftover chemicals (disposed): 140

CHALLENGES/ISSUES

- Labs are eager to get chemicals out of their lab space

Turn Around time of redistributed chemicals

Transportation of redistribution chemicals

- Must pay close attention to DOT transportation rules and manifest as necessary

- Without barcode system, finding chemicals is tedious and time consuming

Mechanism for locating reserved chemicals

Age/Condition/Quality of the chemical

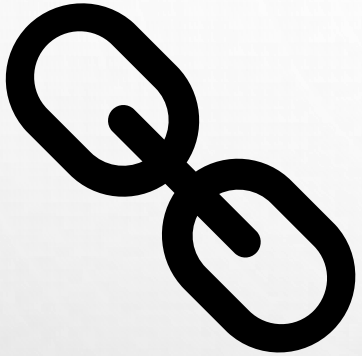
- Must insure that redistributed chemicals are desirable and not waste

- Communication and scheduling between many individuals increases distribution time

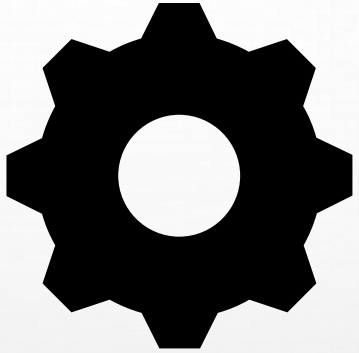
Large coordination between many people

OTHER POTENTIAL BENEFITS

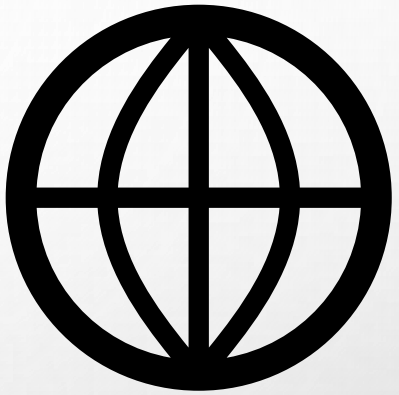
RISK ASSESSMENT



Consistent



Simple



Accurate

SOLVENT RECYCLING PROGRAM

Rinse acetone from undergrad and grad labs

Separate rinse acetone waste collection

Added to recycler

Clean, fractionally distilled acetone

Leftover H_2O, salts, etc.

Disposed of as hazardous waste

CYLINDER DISPOSAL PROGRAM

- Expensive to dispose
- Hazard to keep

SUMMARY

- Implementation of the system: a team of temporary employees and students
- The challenges faced: physical issues, what to inventory, culture change, and chemical fallout
- Accomplishments: chemical redistribution
- The potential benefits: risk assessment, solvent recycling program, and cylinder Disposal Program

QUESTIONS?!

ACKNOWLEDGEMENTS

University of Colorado at Boulder
CU Green Labs Program
CU Environmental Health & Safety
CU Laboratory Personnel
CU Chemistry Department

SPECIAL THANKS TO

Kathryn A. Ramirez
Christina Greever
Fred Genske
Ralph Bogle
CU Boulder Inventory Team