

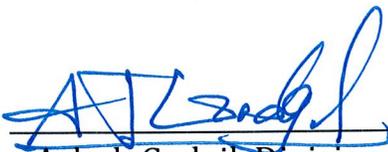
Environmental Energy Technologies Division

2014 Self-Assessment Project #3

A Self-Assessment of Chemical Management System (CMS) Accuracy in Laboratory Areas

August 18, 2014

Approved by:



Ashok Gadgil, Division Director

Sept 22, 2014

Date



Ron Scholtz, EETD Safety Manager

8/18/14

Date

Introduction

The Chemical Management System (CMS) is the on-line system used at LBNL for tracking chemical inventories in work areas. The CMS inventory provides chemical users, Environmental Health and Safety Division staff, and emergency responders with accurate and up-to-date information on the types and quantities of hazardous materials used in each area. The chemical inventory is also used to categorize chemicals into their respective hazard classes and utilize this information for communication to users of particular materials requiring special controls and assisting EHS Division in determining if exposure assessments are needed. The LBNL fire marshal also uses the chemical inventories for determining the maximum allowable quantities of various categories of hazardous materials stored in LBNL buildings.

As a result, it is very important that accurate and up to date chemical inventories are maintained in each user area. This self-assessment is an effort for determining CMS inventory accuracy in EETD lab areas and makes recommendations on how to further improve accuracy.

There have been recent efforts at improving the EETD chemical inventory accuracy. A number of lab areas have had their inventories completely reconciled and updated. This includes EETD areas 62-102, 62-105, 62-316, 70-166, 70-169, 70-173, 70-201, 70-248, 70-249, 70-264, 70-269, and 71-101. In addition, there have been several thousand “old chemicals” and gas cylinders removed and disposed from EETD lab areas. A number of these containers did not have barcodes affixed or were not entered properly into the CMS. Several reviews of the CMS inventory for EETD also revealed that there were chemical owners that are no longer working with LBNL and chemical storage locations that no longer belong to EETD. These were updated as needed.

The EETD Safety Committee has selected Chemical Management System Accuracy in Laboratory Areas as a self-assessment project. This is the third EETD self-assessment project for FY2014.

Requirements

Chemical inventory requirements are described in the following documents:

- LBNL PUB-3000, Health and Safety Manual, Chapter 45- “Chemical Hygiene and Safety Plan”
 - Chemical Procurement, Transportation, and Inventory > LBNL Chemical Inventory
- LBNL Chemical Management System (CMS) website:
<https://cms.lbl.gov/jsp/general/features.jsp>
- LBNL PUB-3000, Chapter 12 “Fire Prevention and Protection”
 - Appendix A, Section 4.0 Environmental/Public Protection
- California Health and Safety Code, Division 20, Chapter 6.96, Article 2 “Hazardous Materials Management”

All hazardous materials used at LBNL are required to be included in the Chemical Management System. The CMS identifies containers (or groups of identical containers) with a barcode containing a six-digit identification number. The barcode is affixed to the chemical container and

required information is entered into the Chemical Management System inventory database.

Information entered includes:

- a) Container barcode
- b) Chemical or product name
- c) Container size
- d) Container type
- e) Physical state (solid, liquid, gas)
- f) Manufacturer
- g) Storage Temperature/Pressure
- h) Building and Room Location
- i) Chemical Owner Name and Division

A chemical owner is the individual that is ultimately responsible for the safe storage and use of hazardous materials in their assigned work area. In EETD, these are generally the Principal Investigators (PI's). The chemical owner is responsible for entering and maintaining the inventory information for their lab areas. Once a chemical is consumed, transferred, or returned to vendor, the chemical owner is also responsible for updating the CMS inventory accordingly. The chemical owners can also assign "proxies" who assist in the entering and deleting of chemical container bar codes from the CMS.

All EETD personnel who handle hazardous materials in the lab areas are required to complete EHS0348 "Chemical Hygiene and Safety" training. This course does include a brief overview of chemical inventory management. The EHS0346 "Chemical Management System Web Application" training course offers one-on-one training specific to use and administration of the CMS database.

Methodology

The following methodology was used to conduct this Chemical Management System inventory accuracy self-assessment:

1. A CMS self-assessment survey was generated and distributed as an on-line "Google survey" to all EETD chemical inventory owners. EETD chemical inventory owners were identified through a search of the CMS database. In addition, a general announcement of the survey was communicated division-wide. See Attachment 1 for the survey form used. The 10 questions asked included:

- A. *Lab Area(s) included in the survey response*
- B. *Who is responsible for maintaining the chemical inventory in your area?*
- C. *Is the responsible person(s) familiar with how to access and use the Chemical Management System (CMS)? Mark one:*
 - Very familiar with use of the CMS*
 - Somewhat familiar with the use of the CMS*
 - Unfamiliar with use of the CMS*
 - Other: _____*
- D. *How are new chemicals entered into the CMS database once they arrive in your lab area? Mark one:*

- Barcodes are applied to containers and entered into the CMS as they arrive*
 - Barcodes are affixed to each container as they arrive but information is not entered into the database until a later time*
 - Barcodes are affixed to containers and data are entered into the database at a later time*
 - Barcodes are affixed to containers but are not entered into the database*
 - Chemicals are not barcoded or entered into the CMS*
 - Other: _____*
- E. *How are chemicals deleted from the CMS database once they are used up or disposed? Mark one:*
- Barcodes are deleted from the CMS as soon as the chemical is used or disposed*
 - Barcodes are deleted from the CMS at a later time*
 - Barcodes are rarely deleted from the CMS*
 - Other: _____*
- F. *How often is your chemical inventory physically checked by you or your proxy to ensure accuracy? Mark one:*
- Monthly*
 - Quarterly*
 - Annually*
 - Seldom*
 - Never*
 - Other: _____*
- G. *What happens when a chemical container without a bar code is identified in your area? Mark one:*
- A barcode is promptly affixed and information entered into the CMS*
 - A barcode is affixed and information entered into the CMS at a later date*
 - The chemical container is removed and disposed from the area*
 - No action is taken*
 - Other: _____*
- H. *How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area? Mark one:*
- Each container has a separate barcode affixed and is entered/deleted each time in the CMS*
 - A removable tag with bar code affixed is placed on each container and is reused*
 - A CMS log sheet with designated bar codes is posted in the lab area*
 - One bar code is assigned and multiple containers are entered into the CMS with no tags or log sheets*
 - No bar codes used and information not placed into the CMS*
 - Other: _____*
- I. *What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?*
- J. *Are there some things you would like to see improved with the LBNL Chemical Management System?*

2. A number of EETD lab areas were physically surveyed for chemical inventory accuracy. The lab areas selected were those that have not had their inventory previously checked/updated by the EETD Safety Manager. Barcodes on all accessible containers were scanned and reviewed for accuracy. Any containers that were found with missing, un-entered, or incorrect barcodes were noted. They were also corrected on the spot to improve overall inventory accuracy. The areas physically surveyed during this self-assessment include:
 - A. 62-305 (G. Chen/J. Kerr)
 - B. 62-342 (M. Doeff)
 - C. 62-348 (N. Balsara)
 - D. 70-103 (H. Destailats)
 - E. 70-123 (N. Balsara)
 - F. 70-215 (T. Kirchstetter)
 - G. 70-218 (V. Battaglia)
 - H. 70-295/297 (V. Battaglia)
 - I. 70-299 (V. Battaglia)
3. The CMS database for all EETD chemical storage areas and EETD chemical owners was checked for obvious inaccuracies. This includes identifying issues with chemical owners, assigned proxies, storage locations, container units, physical state, and storage temperature/quantity.
4. The following personnel participated on the self-assessment team:
 - A. Ron Scholtz- EETD Safety Manager
 - B. Dan Best- EHS Division
5. The scope of this project applies to the EETD lab areas in Buildings 62 and 70.
6. The following were not included in the scope of this self-assessment:
 - A. Non-EETD operated areas in Buildings 62 and 70 such as Facilities, Earth Sciences, and Materials Sciences.
 - B. Small EETD lab areas in Buildings 46, 63, 64, and 71. These areas were previously checked for CMS accuracy within the last year.
 - C. Off-site fieldwork locations.
7. A summary of observations, noteworthy practices, and suggested improvements was compiled by the self-assessment team and presented in this report.

Summary of Findings, Observations and Noteworthy Practices

The following is a summary of findings, observations, and noteworthy practices identified by the self-assessment team. Significant items identified in the findings section are each entered into the Corrective Action Tracking System "CATS" to ensure these are addressed and completion documented. Detailed survey results are found in Attachments 2 and 3.

Findings:

1. A significant number of chemical containers in lab areas 70-295/297 and 70-299 were not entered into the CMS. These were all corrected during the self-assessment. However, there remains a root-cause issue of future containers not being entered/deleted from the CMS. Additional proxies with CMS training need to be identified for these areas. In addition, the containers should be rechecked in the near future to ensure the problem has been addressed. (CATS #9686)

CMS On-Line Survey Results:

1. A total of 28 self-assessment survey requests were sent to EETD chemical owners. Of these, 7 responses were received during the self-assessment period. It is not possible to make any conclusions based on the small number of responses. See Attachment 2 for on-line survey data.
2. Survey Question 1: *Lab areas included in this survey response?*
 - B62 battery labs; 63-103; 62-220/246/308/310; 71-101; 70-274; 70-221/264; 70-263
3. Survey Question 2: *Who is responsible for maintaining the chemical inventory in your lab area?*
 - Principal Investigator- 4
 - Postdoc- 2
 - GSRA- 1
4. Survey Question 3: *Is the responsible person(s) familiar with how to access and use the Chemical Management System?*
 - Very familiar with use of the CMS- 4
 - Somewhat familiar with the CMS- 3
 - Unfamiliar with the CMS- 0
 - Other: 0
5. Survey Question 4: *How are new chemicals entered into the CMS database once they arrive in your lab area?*
 - Bar codes are applied and entered into the CMS as they arrive- 3
 - Bar codes are affixed to each container as they arrive, but information is not entered into the database until later- 3
 - Bar codes are affixed to containers but are not entered into the database- 0
 - Chemicals are not barcoded or entered into the CMS- 0
 - Other: "We don't order CMS relevant chemicals"
6. Survey Question 5: *How are chemicals deleted from the CMS database once they are used or disposed?*
 - Barcodes are deleted from the CMS as soon as the chemical is used or disposed- 4
 - Bar codes are deleted from the CMS at a later time- 2
 - Barcodes are rarely deleted from the CMS- 0
 - Other: "N/A"
7. Survey Question 6: *How often is your chemical inventory physically checked by you or your proxy to ensure accuracy?*
 - Monthly- 0
 - Quarterly- 1

- Annually- 2
 - Seldom- 2
 - Never- 1
 - Other: "N/A"
8. Survey Question 7: *What happens when a chemical container without a bar code is identified in your area?*
- A bar code is promptly affixed and information entered into the CMS- 6
 - A bar code is affixed and information entered at a later date- 0
 - The chemical container is removed and disposed from the area- 0
 - No action is taken- 0
 - Other: "N/A"
9. Survey Question 8: *How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area?*
- Each container has a separate barcode affixed and is entered/deleted each time in the CMS- 1
 - A removable tag with bar code affixed is placed on each container and is reused- 5
 - A CMS log sheet with designated bar codes is posted in the lab area- 0
 - One bar code is assigned and multiple containers are entered into the CMS with no tags or log sheets- 0
 - No bar codes used and information not placed into the CMS- 0
 - Other: "N/A"
10. Survey Question 9: *What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?*
- *"An updated inventory can prevent a duplicate order of chemicals"*
 - *"We can search the chemicals in other labs in the building"*
 - *"Easy to use and accessible"*
 - *"Allows searches"*
 - *It is nice to be able to borrow someone else's chemical especially if you need only a little and don't want to buy a whole bottle"*
11. Survey Question 10: *What are some of the things you would like to see improved with the LBNL Chemical Management System?*
- *"When we search the CMS, active and disposed bottles are in a different category. It would be nice if we could combine both in one search"*
 - *"The data from the vendors should be ported into the CMS automatically so that all we have to do is affix the bar code and type in location"*
 - *"Many staff do not seem to know of the CMS and that it applies to things like a bottle of glue"*
 - *"I would like to see items get bar coded when purchased/received and not leave it up to the researcher"*
 - *"Confusion of what needs to be bar coded. Instead staff tend to ignore the issue"*
 - *"Confusing directions in the past have made many ignore the whole issue"*
 - *"An easier way to update (or see) locations on the container. Chemicals get moved or borrowed and are sometimes left in a new room or location"*
 - *"Transferring containers was not intuitive or fast"*

Physical Area Inventory Observations

1. A bar code scanner was used to verify the chemical inventories in lab areas. The “field check” function was used to scan storage locations for accuracy. A summary of the inventory observations by lab area can be found in Attachment 3.
2. Some containers could not be accessed and were not scanned. This includes numerous containers located inside glove boxes and desiccators. Containers with visible bar codes were noted and manually checked where possible. A complete reconciliation of the area inventory was not possible due to the inaccessibility of these containers.
3. A total of 863 chemical containers were scanned in 9 EETD lab areas.
 - a. 599 containers were entered into the CMS (69%)
 - b. 95 containers had no bar code affixed (11%)
 - c. 150 containers had a bar code affixed but were not entered into the CMS (17%)
 - d. 19 containers were bar coded but listed as “disposed” in the CMS (2%)
4. The area with the best accuracy was 62-342 (Doeff) at 94%. There were 8 containers listed in the system as “disposed” from other lab areas. These were probably borrowed and moved to 62-342 and not updated.
5. The areas with the least accuracy were 70-295/70-297 (Battaglia), and 70-299 (Battaglia) at 57% overall accuracy. Of the 403 containers scanned, 63 (16%) were not bar coded and another 106 (26%) were bar coded but not entered into the CMS. The area safety lead identified numerous log sheets used to track each bar code and container information. However, the information on the log sheets was not inputted into the CMS.
6. There were a number of containers in all areas that were entered into the CMS, but had the wrong location listed. This is a reflection of how containers are moved from one room to another depending on the researcher’s needs. These were corrected during this self-assessment, but there remains a need to find a better means of updating room changes regularly.

CMS Database Accuracy Review Observations

1. Several CMS reports were generated for EETD chemical owners and EETD chemical locations. There were 7,455 bar codes identified for EETD along with 28 chemical owners. These were reviewed for accuracy and updated where needed. Common issues identified included:
 - a. Approximately 20 compressed gas bar codes had quantity units entered as “cyl” rather than “cu ft”. This would result in a 200 cu ft gas cylinder being listed as 200 cylinders.
 - b. A number of gas cylinders were listed as having ambient pressure rather than greater than ambient pressure.
 - c. There were entries for several chemical owners that are no longer employed at LBNL. Fourteen entries were updated to the current PI in the identified location.
2. The Chemical Management System was accessed to determine the assigned proxies for each chemical owner. Issues identified included:
 - a. There were 30 individuals assigned with “universal access” or as “proxies” who are no longer at LBNL. These were deleted from the system.
 - b. Proxies were added for some chemical owners that had none assigned after the above update. These were already lab area safety leads.

- c. There is no capability of running a report listing each chemical owner and their designated proxies under one spreadsheet. Updates had to be made on each chemical owner's update screen. Having this capability would be valuable in not only keeping proxies up to date, but also identifying individuals who may need training or updates on the CMS.
3. A report was generated that identifies the date a chemical was originally entered into the CMS. There were approximately 1,000 containers owned by EETD that are more than 20 years old. The oldest items listed were from 1991 (probably when chemical inventory tracking was started). Although a number of these chemicals may still be in use, this report may be a useful tool for identifying "disposed" containers that were never deleted from the CMS. Some chemicals listed have a limited shelf life. These should be identified and removed from storage/CMS.

Noteworthy Practices:

1. Lab area 62-342 (M. Doeff) had a very high inventory accuracy rate of 94%. The inventory was recently moved from other lab areas in Building 62 and consolidated with those containers already in 62-342. In addition, there was an "old chemical" clean-out activity prior to the move.
2. Several glove boxes located in 70-218, 70-295, and 70-299 had log forms attached that listed materials stored inside. This might be a great way to also track chemical containers inside that cannot otherwise be accessed. The CMS bar code can be affixed to the log sheet for easy scanning and inventory tracking.
3. Almost all gas cylinders have tags affixed with CMS bar code. This allows for easier cylinder replacement of the same gas without having updating the CMS inventory. Note: not all users understood the use of these tags and did not always replace them on the proper container.

Conclusions and Future Improvements

Conclusions

The following conclusions summarize the results of the EETD Chemical Management System Inventory Accuracy self-assessment project:

1. The overall accuracy of the CMS inventory for the 9 lab areas surveyed was 69%. The highest level of accuracy found was 94%. The lowest level of accuracy was 22%. More improvement needs to be made towards inventory accuracy. Although a 100% accuracy rate is ultimately desired, 90-95% accuracy can be achieved through regular updates.
2. The largest issue identified (17% of containers) was that the container information was not entered into the CMS.
3. User feedback indicates that available time considerations can be a factor in getting information entered and regularly updated into the CMS.
4. The use of the new CMS scanning system was a very effective way of surveying and updating lab area chemical inventories.

5. Inaccessibility to chemicals stored inside enclosures such as glove boxes makes full inventory reconciliation difficult. As a result, containers that are no longer stored in the area but are still listed as active in the CMS cannot be quickly identified.

Recommendations and Suggested Future Improvements

The following recommendations and improvements should be made in order to enhance chemical inventory accuracy in EETD lab areas:

1. There is a need for improved CMS training and awareness for both chemical owners and their proxies. Additional EETD "Safety Alerts" with tips and ideas for better use of the CMS should be issued (see Attachment 6). The EHS0346 "CMS Web Application" course should be updated and made available on-line to CMS owners and proxies. Currently, only three EETD personnel are listed as completing this course. **Action Item: EHS Division**
2. The new CMS bar code scanners need to be made available to the lab area proxies for regular use. A centralized scanner/iPod needs to be designated for both buildings 62 and 70. The prototype scanners have proven to be a valuable tool in updating chemical inventories when properly configured. **Action Item: EHS Division**
3. A better means of tracking containers located inside glove boxes needs to be implemented. It was suggested that a log is posted on the outside of the glove box with the bar codes affixed. The containers inside can be interchanged without bar codes so long as the log remains accurate. See Attachment 4 for a proposed log form. **Action Item: EETD Glove Box Owners.**
4. A regular CMS update reminder should be sent out to all CMS chemical owners on at least an annual basis. The reminder should include a current chemical inventory for their areas along with a list of proxies. A reminder with separate inventory lists went out to all 28 EETD chemical owners on 7/21/14. **Action Item: EETD Safety Manager (Completed)**
5. The results of this self-assessment will be made available to EETD lab personnel so that they are aware of issues identified and future plans (**Completed**- Posted on EETD Safety website and announced in division communications).
6. A follow-up self-assessment should be performed in 1-2 years to determine if there have been any changes in CMS inventory accuracy in the lab areas. Lab areas that have not been previously surveyed should be included. This includes 62-308, 62-310, 62-314, 62-350, 70-108, 70-157, 70-163, 70-221, and 70-226.
7. Additional large "old chemical" clean-outs are planned in the near future. This includes lab areas such as 62-220, 62-246, 70-129, 70-226, and 70-246. This presents an opportunity to identify and delete containers that are not correctly entered into the CMS. **Action Item: EETD Safety Manager**
8. A more streamlined approach to maintaining chemical inventories should be considered by EHS Division. Most of the cities and fire departments in California are using an on-line chemical management system called "California Environmental Reporting System" (CERS): <http://cers.calepa.ca.gov>. This system does not require use of bar codes and maintains inventories by storage area in "min/max" quantities rather than by individual containers.

ATTACHMENT 1

Chemical Management System Survey Form

EETD Chemical Management System (CMS) Survey

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EETD Chemical Management System (CMS) Survey

This is a self-assessment survey regarding use of the Chemical Management System (CMS). The CMS is used to track chemical inventories in EETD lab areas. You are currently listed in the CMS as an owner of multiple chemical containers. You can access the CMS and view the current chemical inventory for your area by going to: <https://cms.lbl.gov>. If you should have any questions regarding this survey, contact Ron Scholtz at X8137.

* Required

1. 1. Lab Areas included in this survey response *

2. 2. Who is responsible for maintaining the chemical inventory in your lab area? *

Give names or job classification of individuals who oversee the input and deletion of CMS bar codes.

3. 3. Is the responsible person(s) familiar with how to access and use the Chemical Management System (CMS)? *

Mark only one oval.

- Very familiar with use of the CMS
- Somewhat familiar with use of the CMS
- Unfamiliar with use of the CMS
- Other: _____

4. 4. How are new chemicals entered into the CMS database once they arrive at your lab area? *

Mark only one oval.

- Bar codes are applied to containers and entered into the CMS as they arrive
- Bar codes are affixed to each container as they arrive but information is not entered into the database until later
- Bar codes are affixed to containers and data are entered into the database at a later time.
- Bar codes are affixed to containers but are not entered into the database
- Chemicals are not bar coded or entered into the CMS
- Other: _____

EETD Chemical Management System (CMS) Survey

8/4/14 1:30 PM

5. How are chemicals deleted from the CMS database once they are used up or disposed? **Mark only one oval.*

Bar codes are deleted from the CMS as soon as the chemical is used up or disposed

Bar codes are deleted from the CMS at a later time

Bar codes are rarely deleted from the CMS

Other:

6. How often is your chemical inventory physically checked by you or your proxy to ensure accuracy? **Mark only one oval.*

Monthly

Quarterly

Annually

Seldom

Never

Other:

7. What happens when a chemical container without a bar code is identified in your area? **Mark only one oval.*

A bar code is promptly affixed and information entered into the CMS

A bar code is affixed and information entered into the CMS at a later date

The chemical container is removed and disposed from the area

No action is taken

Other:

8. How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area? *

Example: Your lab area stores 10 bottles of acetone or uses 10 cylinders of argon per month.

Mark only one oval.

Each container has a separate bar code affixed and is entered/deleted each time in the CMS

A removable tag with bar code affixed is placed on each container and is reused.

A CMS log sheet with designated bar codes is posted in the lab area.

One bar code is assigned and multiple containers are entered into the CMS with no tags or log sheets.

No bar codes used and information is not placed into the CMS

Other:

EETD Chemical Management System (CMS) Survey

8/4/14 1:30 PM

9. **What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?**

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10. **What are some of the things you would like to see improved with the LBNL Chemical Management System?**

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ATTACHMENT 2 Chemical Management System On-Line Survey Results

1. Lab Areas included in this survey response	2. Who is responsible for maintaining the chemical inventory in your lab area?	3. Is the responsible person(s) familiar with how to access and use the Chemical Management System (CMS)?	4. How are new chemicals entered into the CMS database once they arrive at your lab area?	5. How are chemicals deleted from the CMS database once they are used up or disposed?	6. How often is your chemical inventory physically checked by you or your proxy to ensure accuracy?	7. What happens when a chemical container without a bar code is identified in your area?	8. How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area?	9. What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?	10. What are some of the things you would like to see improved with the LBNL Chemical Management System?
B62 - Battery labs	Postdoc	Very familiar with use of the CMS	Bar codes are affixed to each container as they arrive but information is not entered into the database until later	Bar codes are deleted from the CMS as soon as the chemical is used up or disposed	Quarterly	A bar code is promptly affixed and information entered into the CMS	A removable tag with bar code affixed is placed on each container and is reused.	An updated chemical inventory can prevent duplicate chemical, as we can search the chemicals in our lab or other labs in the building. Thus, CMS reduce size of chemical inventory and cost of operation.	When we searcher CMS, active and dispose bottle are on different category, since CMS keep data for both...it will be nice if we can combine both in one search.
63-103	mifischer	Somewhat familiar with use of the CMS	we don't order CMS relevant chemicals	NA	NA	NA	NA		
62-220,-218,-246, -308,-310	John Kerr Staff Scientist, Sebastian Gottis, - Postdoc, Kyle Clark, Leah Rubin, Dan Kellenberger - GSRAS	Very familiar with use of the CMS	Bar codes are applied to containers and entered into the CMS as they arrive	Bar codes are deleted from the CMS as soon as the chemical is used up or disposed	Annually	A bar code is promptly affixed and information entered into the CMS	A removable tag with bar code affixed is placed on each container and is reused.	Easy to use. Accessible and allows searches.	The data from the vendors should be ported into the CMS automatically so that all we have to do is affix the bar code and typr in the lab location for storage. This is worth money!!

1. Lab Areas included in this survey response	71 - 101, 101A	2. Who is responsible for maintaining the chemical inventory in your lab area?	Darryl Dickerhoff	3. Is the responsible person(s) familiar with how to access and use the Chemical Management System (CMS)?	Somewhat familiar with use of the CMS	4. How are new chemicals entered into the CMS database once they arrive at your lab area?	Bar codes are applied to containers and entered into the CMS as they arrive	5. How are chemicals deleted from the CMS database once they are used up or disposed?	Bar codes are deleted from the CMS at a later time	6. How often is your chemical inventory physically checked by you or your proxy to ensure accuracy?	Annually	7. What happens when a chemical container without a bar code is identified in your area?	A bar code is affixed and information entered into the CMS at a later date	8. How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area?	Each container has a separate bar code affixed and is entered/deleted each time in the CMS	9. What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?		10. What are some of the things you would like to see improved with the LBNL Chemical Management System?	Many staff do not seem to know of the CMS, and that it applies to things like a bottle of glue. I would like to see items get bar coded when purchased/received, and not leave it up to the researcher. That way the confusion of "what needs to be bar coded" will be passed on to a knowledgeable person. Everything is a chemical, including your PC. How do I know if the battery in my PC needs to be inventoried? Instead staff tend to ignore the issue. Confusing directions in the past have made many ignore the whole issue.
70-274	Jonathan Slack	Very familiar with use of the CMS	Bar codes are affixed to containers and data are entered into the database at a later time.	Bar codes are deleted from the CMS at a later time	Seldom	A bar code is affixed and information entered into the CMS at a later date	A removable tag with bar code affixed is placed on each container and is reused.												

1. Lab Areas included in this survey response	2. Who is responsible for maintaining the chemical inventory in your lab area?	3. Is the responsible person(s) familiar with how to access and use the Chemical Management System (CMS)?	4. How are new chemicals entered into the CMS database once they arrive at your lab area?	5. How are chemicals deleted from the CMS database once they are used up or disposed?	6. How often is your chemical inventory physically checked by you or your proxy to ensure accuracy?	7. What happens when a chemical container without a bar code is identified in your area?	8. How are multiple containers of the same chemical or high throughput chemicals managed in the CMS for your area?	9. What are some of the things you like about the LBNL Chemical Management System? Are there any features that add value to your lab activities?	10. What are some of the things you would like to see improved with the LBNL Chemical Management System?
70-223, 221, 264	Marion Russell	Very familiar with use of the CMS	Bar codes are affixed to each container as they arrive but information is not entered into the database until later	Bar codes are deleted from the CMS as soon as the chemical is used up or disposed	Seldom	A bar code is promptly affixed and information entered into the CMS	A removable tag with bar code affixed is placed on each container and is reused.	It is nice to be able to "borrow" someone else's chemical especially if you only need a little and don't want to buy a whole bottle.	An easier way to update (or see) locations - maybe on the container? Chemicals get moved "borrowed" and are sometimes left in a new location or room. A more user-friendly interface with google style search and autofill options.
70-263	Kenny Higa	Somewhat familiar with use of the CMS	Bar codes are applied to containers and entered into the CMS as they arrive	Bar codes are deleted from the CMS as soon as the chemical is used up or disposed	Never	A bar code is promptly affixed and information entered into the CMS	We only have this for gas cylinders, and only have one for each bar code at any time		Transferring containers was not intuitive or fast.

ATTACHMENT 3 CMS Physical Inventory Survey Results

Lab Area	Chemical Owner	Date	Total Containers Scanned	Correct in CMS	No Bar Code	Bar Code Not Entered	Disposed	% Accuracy
62-305	G. Chen/J. Kerr	7/28/14	16	11	3	2	0	69%
62-342	M. Doeff	7/28/14	199	187	4	0	8	94%
62-348	N. Balsara	7/16/14	94	62	18	14	0	65%
70-103	H. Destailats	7/24/14	37	22	7	8	0	59%
70-123	N. Balsara	7/15/14	52	35	0	17	0	67%
70-215	T. Kirchstetter	6/27/14	62	53	0	3	6	85%
70-218	V. Battaglia	6/27/14	88	55	16	12	5	63%
70-295/297	V. Battaglia	7/9/14	288	168	36	84	0	58%
70-299	V. Battaglia	6/17/14	27	6	11	10	0	22%
			863	599	95	150	19	69%

Note: Lab areas with glove boxes did not have all containers checked due to access limitations. Only a limited number of containers with visible bar codes could be verified.

