Division of Chemical Health & Safety
Executive Committee ACS Spring 2016 Meeting

Date: Sunday Aug. 20, 2017
Time: 8:30 to 12:00
Location: Washington Convention Center, 146C

Officer Reports and Continuing Business (8:30am-9:30am)

Chair's Report – Harry Elston (see attachment 1)

JCHAS Editor's Report – Harry Elston (see attachment 1a)

Treasurer's Report – Neal Langerman and Mary Beth Koza (see attachment 2)

- E learning course developments (Neal)

Secretary's Report – Ralph Stuart (see attachment 3)

Chair Elect's report – Joe Pickle (see attachments 4 & 4a)

Membership Report (see attachments 4b & 4c)

National ACS Safety Award Proposal – Bob Hill (see attachments 5 & 5a)

Committee Reports and New Business (9:45am-11:00am)

Awards Committee Report – Doug Walters (see attachment 6)

Workshop Committee – Russ Phifer (see attachment 7)

Programming Committee – Debbie Decker (see attachments 8 & 8a)

Regional Meetings Committee – Mark Lassiter and Lee Latimer (see attachments 9 & 9a)

Long Range Planning Committee – Sammye Sigmann (see attachment 10)

National Academy of Sciences Graduate Education Task Force call for input – Sammye Sigmann (see attachments 11, 11a, & 11b)

Government Relations Committee – Ellen Sweet (see attachment 12)

Chemical Safety Policy Statement Writing Group – Ken Fivizzani (see attachment 13)

Visitors, introduced upon arrival:

ACS Presidential Candidates:
- Bonnie A. Charpentier, Cytokinetics, Inc., South San Francisco, CA
- Willie E. May, University of Maryland, College Park, MD

Attachment 1

Chair's Report

Welcome to Washington DC!

Thanks to our programming chairs, Debbie Decker and Joe Pickel, this meeting is absolutely full of presentations with symposia into Wednesday afternoon! Included in this full program are the ***two*** Presidential sessions, *Institutional and Enterprise Level Efforts to Developing a Safety Culture* and *Grassroots Approaches to Developing a Safety Culture* that will fill up Monday's schedule. Included in our programming will be our annual Awards presentations organized by Doug Walters (Sunday) and our Social with Small Chemical Business organized by Robin Izzo on Monday evening and this will be one of the busiest meetings ever for the division.

What's been happening since our last National Meeting? Plenty:

- The Division's 2016 work is being recognized as a Chemluminary award finalist. The presentation of awards will be on Tuesday night at the JW Marriott Grand Ballroom.
- Dr. Robert Hill will be recognized as an ACS Fellow on Monday. Congratulations to Bob!
- Our Cannabis Subdivsion continues to grow in membership and impact. Ezra will have more on that.
- Transition in two core positions (treasurer and secretary) is proceeding smoothly. Both Neal Langerman and Ralph Stuart are providing excellent guidance to Mary-Beth Koza (treasurer) and Monique Wilhelm (secretary). Mary Beth will be handling travel reimbursements for this meeting.
- Through the leadership of Bob Hill and Chris Incarvito, we continue to make progress with an ACS National Award for safety.
- Through Russ Phifer's and Neal Langerman's leadership, progress is being made for the online training program that has been in the works for over five years. The proposal is being decided by the ACS Board on 20 August and we are hopeful of a positive reply later that day.
- Through John Palmer's leadership, the Division secured IPG funding for the 2018 UCCLS Safety Conference.
- In other IPG news: Through Ralph Stuart's and Leah McEwen's leadership, the Division closed out the Survey IPG and draft reports were sent to CHAS, CCS and CINF. Also, the Division has submitted an application for IPG funds to develop a pilot video on risk assessment.

As this is my last National Meeting at the head of the table, I want to take just a brief moment to say "Thank You" to each of the volunteers that have contributed to this year as being one of the most successful years for the Division that I can remember. It has been a pleasure to be the Chair of CHAS during 2017, and each of you have made this one a very easy year to lead the division. The division is in a great place – both financially and leadership-wise for Joe Pickel to take up the Chair's mantel for 2018.

I wish each of you a successful meeting in San Francisco.

Harry Elston

JCHAS Editor's Report
Fall 2017
(Washington DC ACS Meeting)
Prepared 8 August 2017

Pipeline

The pipleline is complete through the Jan/Feb 2018 issue and we are currently filling the March/April 2018 issue now. There is a paucity of manuscripts in the pipeline and I have put out a call for case studies on two lists with some response. Submitted manuscripts have dropped off some since the last meeting to approximately four or five per month. Of those four or five manuscripts, again usually one or two will get through to the review stage. The primary causes for rejection continue to be (1) English grammar/punctuation and (2) Outside the scope of the publication.

We have been getting some interesting articles that are within the scope of JCHAS but we are lacking the review expertise among the editorial board. These manuscripts are either heavy in engineering or toxicology. Pure toxicology and toxicology research are routinely referred to other journals, while occupational toxicology-related publications are taken for review. Manuscripts that are engineering-heavy and within the scope of the journal are also taken for review, but usually take a little longer as I need to find engineering folks to provide review.

Elsevier

There has been little going on with Elsevier since the last meeting. EVISE, the new submission system is still on hold while Elsevier attempts to get the system working.

The editorial board will be meeting with Elsevier on Tuesday morning for breakfast for an update.

TREASURER'S REPORT

Washington DC, 2017

Neal Langerman

Mary Beth Koza

Data as of Aug 5, 2017

Treasurer's comments

- Reimbursement requests due:
  - **17 September 2017**
  - Send reimbursement requests to
    - Mary Beth Koza (mbkoza2@gmail.com)
  - All receipts in single PDF; XL file as Excel
  - Name files: Yourlastname_DC_2017
- Financial condition of CHAS: Guarded
  - Unchanged from Spring, 2017 report

BALANCE SHEET SUMMARY

		As of …	6 March 2017	5 Aug 2017
ASSETS				
	Current Assets			
		Checking/Savings	$48,115	$42,960
	Investments			
	TIAA-CREF inception value as of 1/6/2015 $89,514		$97374	$101,801
TOTAL ASSETS				
LIABILITIES & EQUITY	**Liabilities**		$0	$0
	Equity		$145,489	$143,341
TOTAL LIABILITIES & EQUITY			$145,489	$143,341

BUDGET SUMMARY
Calendar Year, 2017

	Budget, $	Actual, $ To date
Income	$116,000	$96,871
Expenses	$116000	$94,060
Operating Gain/Loss	$0	2811

FINANCIAL DETAILS

- Documentation Attached
  - Balance Sheet
  - Profit & Loss Statement
  - Graphical Representations
  - CCS/CHAS Booth cost
  - CANN P&L all and current year
  - CANN Transaction Statement

Division of Chemical Health & Safety

BALANCE SHEET

As of August 5, 2017

	TOTAL
ASSETS	
Current Assets	
Bank Accounts	
Bank Fee	317.32
CH1A CHECKING	40,843.40
Total Bank Accounts	**$41,160.72**
Other Current Assets	
1499 Undeposited Funds	1,800.00
Total Other Current Assets	**$1,800.00**
Total Current Assets	**$42,960.72**
Other Assets	
C INVESTMENTS & OTHER ASSETS	-1,420.89
C1 INVESTMENTS/ASSETS - UNRESTR.	
C1D2 AMERIPRISE MUTUAL	-8,199.14
C1D2-1 FMV Adjustment, Ameriprise	8,226.70
C1D2-2 Ameriprise Setrtlement Fund	-27.56
Total C1D2 AMERIPRISE MUTUAL	**0.00**
Total C1 INVESTMENTS/ASSETS - UNRESTR.	**0.00**
C4 TIAA-CREF	101,801.00
Total C INVESTMENTS & OTHER ASSETS	**100,380.11**
Total Other Assets	**$100,380.11**
TOTAL ASSETS	**$143,340.83**
LIABILITIES AND EQUITY	
Liabilities	
Current Liabilities	
Credit Cards	
CHAS DEBIT CARD	0.00
Total Credit Cards	**$0.00**
Total Current Liabilities	**$0.00**
Total Liabilities	**$0.00**
Equity	
1110 Retained Earnings	140,529.74
Net Income	2,811.09
Total Equity	**$143,340.83**
TOTAL LIABILITIES AND EQUITY	**$143,340.83**

Division of Chemical Health & Safety

PROFIT AND LOSS

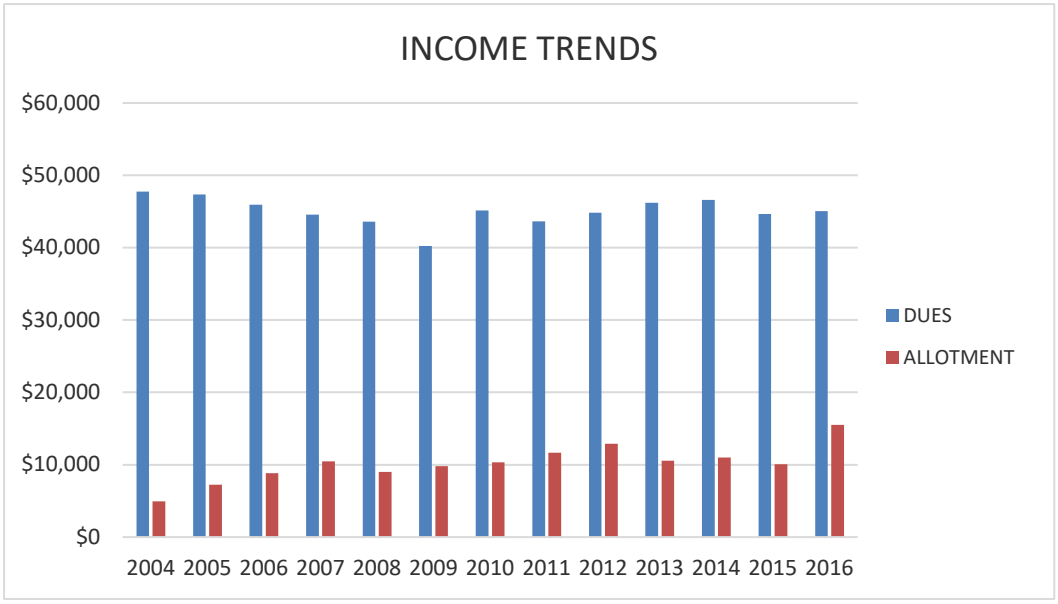
January 1 - August 5, 2017

	TOTAL
INCOME	
4999 Uncategorized Income	1,200.00
A1 CONTRIBUTIONS	
A1E INNOVATIVE PROJECT FUNDING	
A1E1 MENTORING PROGRAM	1,000.00
Total A1E INNOVATIVE PROJECT FUNDING	**1,000.00**
A1F DONATIONS	50.00
A1F2 DONATION CANN SUBDIVISION	3,040.00
A1F2A Heidolph North America	7,500.00
Total A1F2 DONATION CANN SUBDIVISION	**10,540.00**
Total A1F DONATIONS	**10,590.00**
A1G OTHER CONTRIBUTIONS	2,000.00
Total A1 CONTRIBUTIONS	**13,590.00**
A4 CONF/WORKSHOPS/MEETINGS	
A4A WORKSHOPS	-3,375.00
A4A1 CHO WORKSHOP	12,325.00
A4A2 LAB SAFETY WORKSHOP	7,650.00
A4A3 HAZWASTE WORKSHOP	4,675.00
A4A5 REACTIVES WORKSHOP	4,675.00
Total A4A WORKSHOPS	**25,950.00**
Total A4 CONF/WORKSHOPS/MEETINGS	**25,950.00**
A5 DUES & ASSESSMENTS	28,334.00
A5D ANNUAL ALLOCATION FROM ACS	15,047.29
A5E OTHER DUES INCOME	120.00
Total A5 DUES & ASSESSMENTS	**43,501.29**
A6 INVESTMENTS (OPERATING)	5,253.14
A8 OTHER	
A8B MISCELLANEOUS	
A8B2 Exhibit Hall Fee	2,600.00
Total A8B MISCELLANEOUS	**2,600.00**
Total A8 OTHER	**2,600.00**
C3 UNREALIZED GAIN/LOSS MUTUAL	4,427.00
Sales of Product Income	1,250.00
Services	-900.00
Total Income	**$96,871.43**
GROSS PROFIT	**$96,871.43**
EXPENSES	
B1 CONTRIBUTIONS EXP.	
B1B INNOVATIVE FUNDING EXPENSE	
B1B1 MENTORING PROGRAM	1,000.00

	TOTAL
B1B8 Chemists Survey 2016 Expenses	7,480.00
B1B9 SAFETY BY DESIGN 2018	5,000.00
Total B1B INNOVATIVE FUNDING EXPENSE	**13,480.00**
Total B1 CONTRIBUTIONS EXP.	**13,480.00**
B2 NATIONAL MEETING EXPENSES	
B2A SPEAKER FEES	
B2A2 REGISTRATION - SPEAKERS	240.00
Total B2A SPEAKER FEES	**240.00**
B2C MEALS - SPEAKER	1,283.87
B2E PLANNING EXPENSES	
B2E1 EXEC. COMM. MEETING	
B2E1a A/V Expenses	1,670.47
B2E1b REFRESHMENTS	2,013.76
B2E1c SUPPLIES & MATERIALS	78.00
Total B2E1 EXEC. COMM. MEETING	**3,762.23**
B2E2 STRATEGIC PLANNING	140.00
Total B2E PLANNING EXPENSES	**3,902.23**
B2I SOCIAL EVENT NAT MTG	4,000.00
Total B2 NATIONAL MEETING EXPENSES	**9,426.10**
B5 PUBLICATION EXPENSES	
B5F OTHER	
B5F1 JCHAS Expenses	
B5F1a JCHAS (Subs paid Elsevier)	21,672.00
Total B5F1 JCHAS Expenses	**21,672.00**
Total B5F OTHER	**21,672.00**
Total B5 PUBLICATION EXPENSES	**21,672.00**
B6 CONF/WORKSHOPS/MEETINGS EXP	324.88
B6B OTHER	
B6B1 LAB SAFETY WORKSHOP	
B6B1a SAFETY INSTRUCTOR FEE	300.00
Total B6B1 LAB SAFETY WORKSHOP	**300.00**
B6B2 CHO WORKSHOP	
B6B2a CHO INSTRUCTOR FEE	300.00
B6B2b CHO INSTRUCTOR EXP	300.00
B6B2c CHO MANUALS, etc.	440.64
B6B2d CHO Profit Sharing	1,188.04
Total B6B2 CHO WORKSHOP	**2,228.68**
B6B3 HAZARDOUS WASTE WORKSHOP EXP	
B6B3c HAZWASTE MANUALS, etc	866.64
B6B3d LAB WASTE Profit Sharing	1,021.94
Total B6B3 HAZARDOUS WASTE WORKSHOP EXP	**1,888.58**
B6B7 Reactives Workshop	
B6B7a REACTIVES INSTRUCTOR FEE	300.00
B6B7c REACTIVES MATERIALS	150.00
B6B7d REACTIVES PROFIT SHARING	445.34

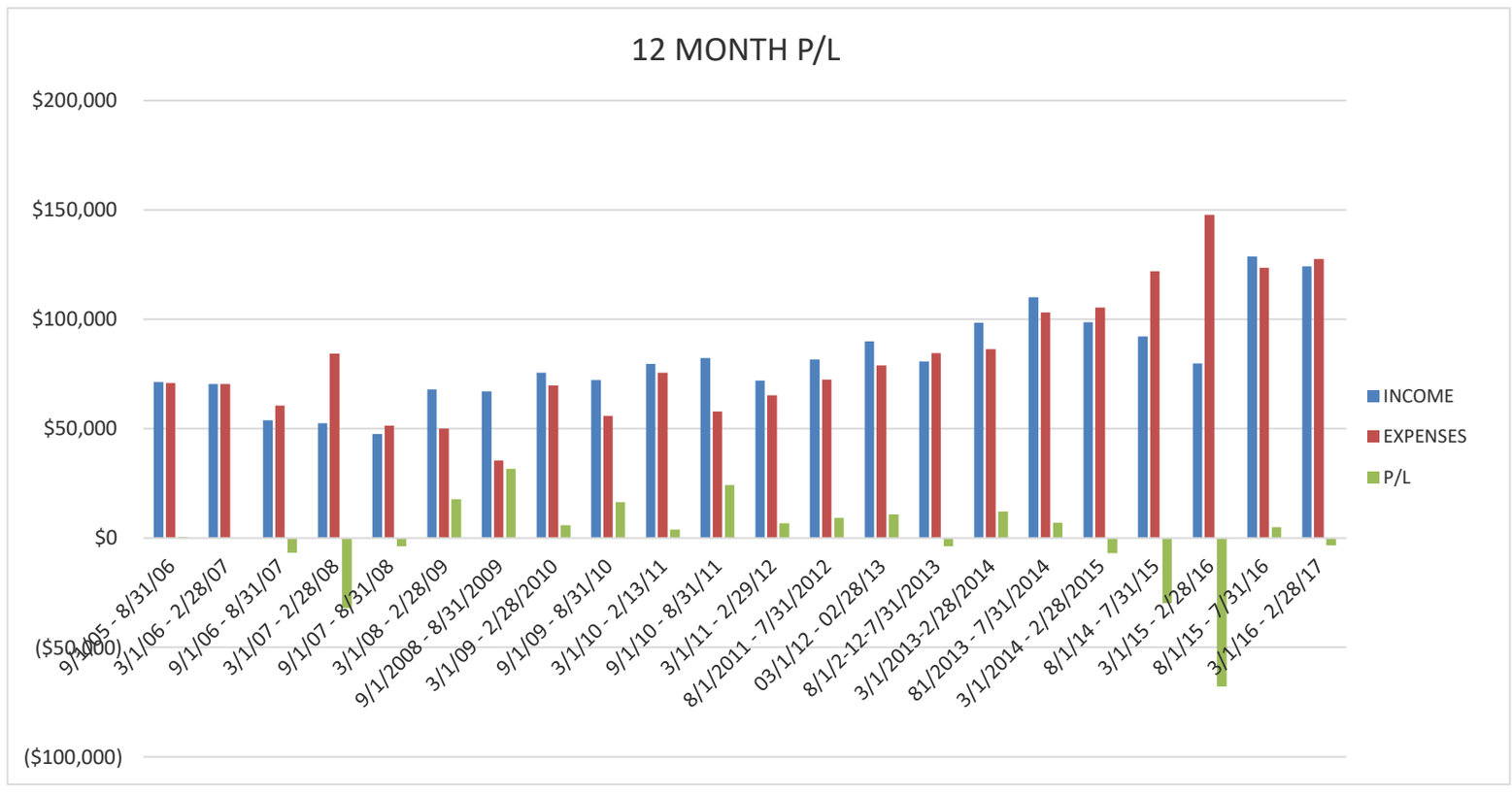
	TOTAL
Total B6B7 Reactives Workshop	**895.34**
Total B6B OTHER	**5,312.60**
B6D WORKSHOP A/V	553.29
B6E Workshop, Coffee	1,151.62
Total B6 CONF/WORKSHOPS/MEETINGS EXP	**7,342.39**
B7 ADMINISTRATIVE	
B7A OFFICER EXP. (9A)	2,100.00
B7B COMMITTEE EXP	1,800.00
B7C COUNCILOR EXP	7,563.05
B7F DLC/P2C2 CONF EXP	
B7F1 DLC ATTENDEE EXP	745.84
Total B7F DLC/P2C2 CONF EXP	**745.84**
B7G SUPPLIES & OPERATIONS (9G)	69.63
B7G1 POSTAGE	49.00
Total B7G SUPPLIES & OPERATIONS (9G)	**118.63**
B7H ELECTION EXPENSES (9G)	2,035.46
B7I PROGRAM CHAIRS (both) (9A)	607.76
Total B7 ADMINISTRATIVE	**14,970.74**
B8 OTHER EXP (9G)	
B8A CREDIT CARD PROCESSING FEE	1,316.80
B8C ADVERTISING	100.85
B8D EXHIBIT HALL PRESENCE	5,666.42
Total B8 OTHER EXP (9G)	**7,084.07**
B9 CANNABIS SUBDIV EXP	4,402.06
B9A1 Advertising/Promotional	5,331.92
Total B9 CANNABIS SUBDIV EXP	**9,733.98**
Uncategorized Expense	10,351.06
Total Expenses	**$94,060.34**
NET OPERATING INCOME	**$2,811.09**
NET INCOME	**$2,811.09**

	INCOME	
	DUES	ALLOTMENT
2004	$47,732	$4,954
2005	$47,376	$7,235
2006	$45,919	$8,842
2007	$44,563	$10,480
2008	$43,599	$9,020
2009	$40,223	$9,814
2010	$45,135	$10,340
2011	$43,649	$11,648
2012	$44,833	$12,908
2013	$46,208	$10,550
2014	$46,601	$10,985
2015	$44,656	$10,061
2016	$45,056	$15,505
2017	$43,501	$15,407

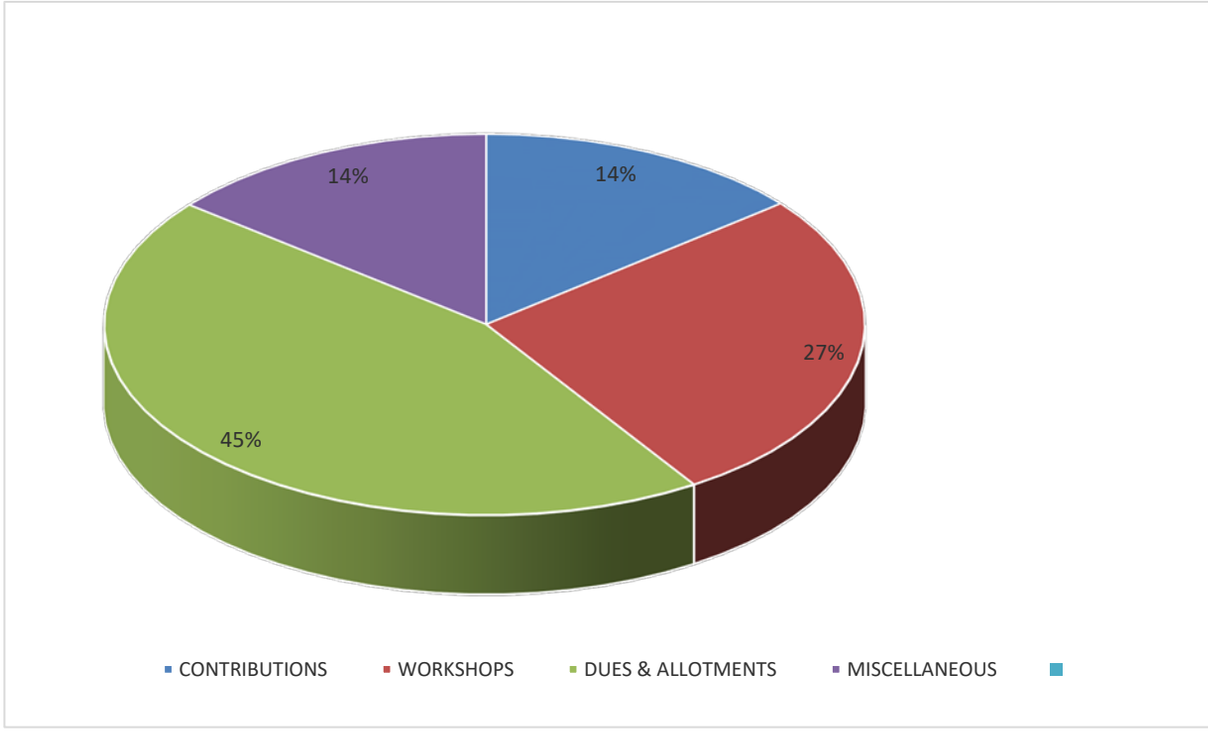


CHAS Financial Metrics - 8/5/2017

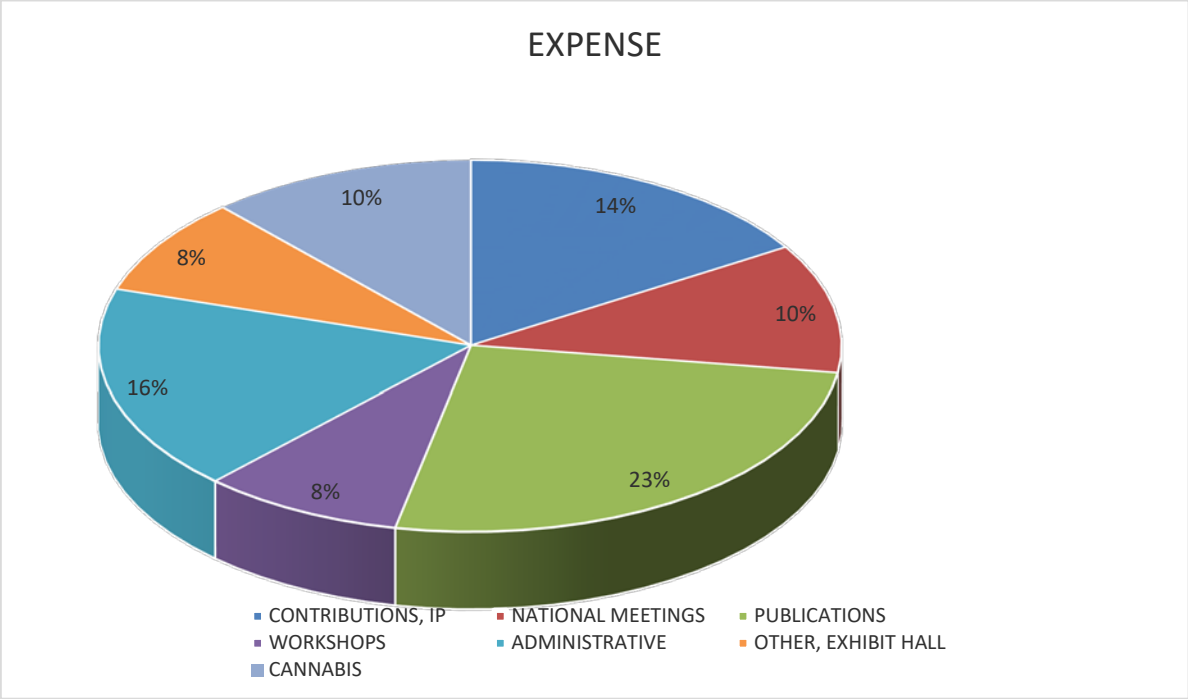
	OVERALL INCOME	EXPENSE	P/L
9/1/05 - 8/31/06	$71,348	$70,872	$476
3/1/06 - 2/28/07	$70,356	$70,450	($94)
9/1/06 - 8/31/07	$53,881	$60,500	($6,619)
3/1/07 - 2/28/08	$52,524	$84,443	($31,919)
9/1/07 - 8/31/08	$47,615	$51,427	($3,812)
3/1/08 - 2/28/09	$67,939	$50,108	$17,831
9/1/2008 - 8/31/2009	$67,091	$35,377	$31,714
3/1/09 - 2/28/2010	$75,679	$69,675	$6,004
9/1/09 - 8/31/10	72,263	55,937	$16,326
3/1/10 - 2/13/11	$79,585	$75,647	$3,938
9/1/10 - 8/31/11	$82,255	$58,001	$24,254
3/1/11 - 2/29/12	$72,017	$65,235	$6,782
8/1/2011 - 7/31/2012	$81,584	$72,356	$9,228
03/1/12 - 02/28/13	$89,904	$79,063	$10,841
8/1/2-12-7/31/2013	$80,796	$84,635	($3,839)
3/1/2013-2/28/2014	$98,395	$86,284	$12,111
81/2013 - 7/31/2014	$110,174	$103,187	$6,987
3/1/2014 - 2/28/2015	$98,659	$105,502	($6,843)
8/1/14 - 7/31/15	$92,244	$121,906	($29,662)
3/1/15 - 2/28/16	$79,887	147,726	($67,839)
8/1/15 - 7/31/16	$128,727	$123,654	$5,073
3/1/16 - 2/28/17	$124,285	$127,571	($3,286)
8/1/16 - 7-31/17	$132,718	$136,627	($3,970.00)



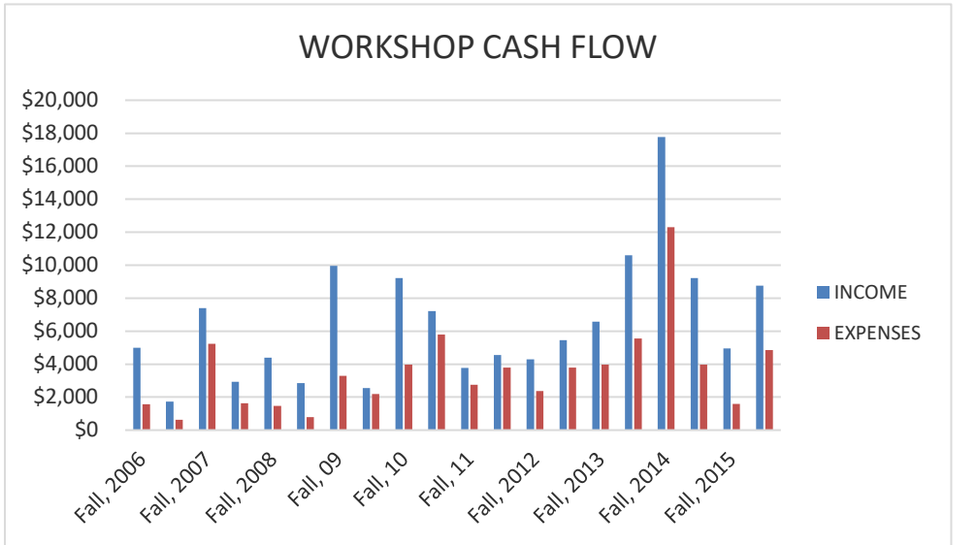
		%
CONTRIBUTIONS	$13,590	14%
WORKSHOPS	$25,950	27%
DUES & ALLOTMENTS	$43,501	45%
MISCELLANEOUS	$13,730	14%
TOTAL INCOME	$96,771	



CONTRIBUTIONS, IP	$13,480	14%
NATIONAL MEETINGS	$9,426	10%
PUBLICATIONS	$21,672	23%
WORKSHOPS	$7,342	8%
ADMINISTRATIVE	$14,970	16%
OTHER, EXHIBIT HALL	$7,084	8%
CANNABIS	$9,733	10%
OTHER	$10,351	
TOTAL EXPENSES	$94,058	



	BY MEETING	
	INCOME	EXPENSE
Fall, 2006	$4,993	$1,563
Spring, 2007	$1,734	$619
Fall, 2007	$7,400	$5,238
Spring, 2008	$2,929	$1,634
Fall, 2008	$4,400	$1,466
Spring, 09	$2,850	$779
Fall, 09	$9,950	$3,292
Spring. 10	$2,550	$2,186
Fall, 10	$9,225	$3,972
Spring, 11	$7,225	$5,803
Fall, 11	$3,775	$2,757
Spring, 2012	$4,545	$3,782
Fall, 2012	$4,300	$2,372
Spring, 2013	$5,450	$3,788
Fall, 2013	$6,571	$3,963
Spring, 2014	$10,600	$5,561
Fall, 2014	$17,772	$12,302
Spring, 2015	$9,225	$3,972
Fall, 2015	$4,950	$1,584
Spring, 2016	$8,750	$4,856
Fall, 2016	$13,175	$7,145
Spring,2017	$11,900	$5,907



CHAS/CCS Booth Costs

Total costs by National Meeting

2010 – 1	$1063
2010 – 2	$1296
2011 – 1	$1629
2011 – 2	$1453
2012 – 1	$1000
2012 – 2	$1363
2013-1	$964
2013-2	$1713
2014-1	$1417
2014-2	$2451
2015-1	$2826
2015-2	$1937
2016-1	$3392
2016-2	$2716
2017-1	$2756

Attachment 2

Division of Chemical Health & Safety

CANN P&L

January 1 - August 3, 2017

	TOTAL	
	JAN 1 - AUG 3, 2017	JAN 1 - AUG 3, 2016 (PY)
INCOME		
A1 CONTRIBUTIONS		
A1F DONATIONS		
A1F2 DONATION CANN SUBDIVISION	3,040.00	6,595.00
Total A1F DONATIONS	**3,040.00**	**6,595.00**
Total A1 CONTRIBUTIONS	**3,040.00**	**6,595.00**
Total Income	**$3,040.00**	**$6,595.00**
GROSS PROFIT	**$3,040.00**	**$6,595.00**
EXPENSES		
B9 CANNABIS SUBDIV EXP	4,402.06	2,566.63
B9A1 Advertising/Promotional	5,331.92	1,681.75
Total B9 CANNABIS SUBDIV EXP	**9,733.98**	**4,248.38**
Total Expenses	**$9,733.98**	**$4,248.38**
NET OPERATING INCOME	**$ -6,693.98**	**$2,346.62**
NET INCOME	**$ -6,693.98**	**$2,346.62**

Division of Chemical Health & Safety

TRANSACTION REPORT

January - July, 2017

DATE	TRANSACTION TYPE	NUM	NAME	MEMO/DESCRIPTION	ACCOUNT	SPLIT	AMOUNT	BALANCE
Invoice								
03/01/2017	Invoice	139	Heidolph North America	Scholarship Award administered by CANN	A1F2A CONTRIBUTIONS:DONATIONS:DONATION CANN SUBDIVISION:Heidolph North America	1200 Accounts Receivable	7,500.00	7,500.00
Total for Invoice							**$7,500.00**	
Bill								
03/10/2017	Bill		ANDREW PHAM	LOGO ARTWORK	B9 CANNABIS SUBDIV EXP	2000 Accounts Payable	300.00	300.00
03/15/2017	Bill		MELISSA JANINE WILCOX	PERKIN ELMER SPONSORED EVENT	B9 CANNABIS SUBDIV EXP	2000 Accounts Payable	1,500.00	1,800.00
04/11/2017	Bill		BIG ROCK	Networking eventt	B9 CANNABIS SUBDIV EXP	2000 Accounts Payable	1,000.00	2,800.00
06/06/2017	Bill	5299	EZRA PRYOR	TORONTO EVENT SUPPORTED BY PERKIN-ELMER	B9 CANNABIS SUBDIV EXP	2000 Accounts Payable	275.71	3,075.71
07/26/2017	Bill		American Chemical Society	CANN LUNCHEON IN SF	B9A1 CANNABIS SUBDIV EXP:Advertising/Promotional	2000 Accounts Payable	4,721.92	7,797.63
Total for Bill							**$7,797.63**	
Deposit								
01/03/2017	Deposit		SC LAB	BKOFAMERICA ATM 01/03 #000004792	A1F2 CONTRIBUTIONS:DONATIONS:DONATION CANN SUBDIVISION	CH1A CHECKING	500.00	500.00
01/30/2017	Deposit		EDEN LABS LLC	BKOFAMERICA MOBILE 01/29 3519876	A1F2 CONTRIBUTIONS:DONATIONS:DONATION CANN SUBDIVISION	CH1A CHECKING	40.00	540.00
07/21/2017	Deposit		WATERS CORPORATION	Counter Credit	A1F2 CONTRIBUTIONS:DONATIONS:DONATION CANN SUBDIVISION	CH1A CHECKING	2,500.00	3,040.00
Total for Deposit							**$3,040.00**	
Expense								
03/20/2017	Expense			CHECKCARD 0317 IPY*The Monterey	B9A1 CANNABIS SUBDIV EXP:Advertising/Promotional	CH1A CHECKING	610.00	610.00
04/06/2017	Expense			CHECKCARD 0404 JILLIANS BILLISAR	B9 CANNABIS SUBDIV EXP	CH1A CHECKING	1,326.35	1,936.35
Total for Expense							**$1,936.35**	
TOTAL							**$20,273.98**	

Secretary's Report, August 2017

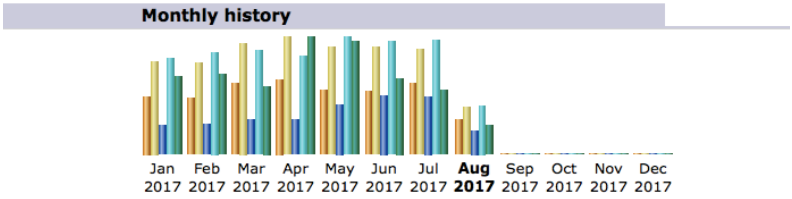
1. Divisional Election: The DCHAS annual 2017 election was held on time in May 2017. The results are appended to this report.

2. Innovative Project Grants: The draft CHAS/CINF joint IPG summary report on academic risk assessment practices is attached for DCHAS review. Questions and comments on this draft will be accepted until September 15, at which point the report will be shared with the Division and other ACS stakeholders. An IPG application for a pilot risk assessment video was submitted for review at this meeting.

3. ACS Webinars: The Division co-sponsored two webinars ACS offices in 2017. The first, on May 11, was jointly presented by Ralph Stuart and Dr. Kendra Denlinger and entitled *"Creating a 21st Century Chemical Research Laboratory: Hazard Assessments and Fundamentals."* There were about 500 attendees and follow up questions and answers were posted to the DCHAS web site. In June, Sammye Sigmann and Ralph presented *Going Beyond Borders: Lab Safety Around the Globe* through the ACS International Center. This webinar reached about 100 attendees. Both were recorded and are available for viewing.

4. Electronic Presence: The web site has continued to be updated with new posts about monthly. The web site received between 5000 and 6000 unique visitors per month, with about 2 visits each (see attached graph). Similarly, DCHAS-L has continued to be an active. It is expected that both of these functions will be transferred from the secretarial duties to the Outreach Committee at the end of the year.

DCHAS Web Site Traffic



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	5,112	8,126	18,113	60,235	4.82 GB
Feb 2017	4,935	8,002	19,026	64,139	5.03 GB
Mar 2017	6,232	9,720	21,201	64,501	4.25 GB
Apr 2017	6,505	10,269	21,479	61,451	7.33 GB
May 2017	5,610	9,451	31,091	73,370	7.01 GB
Jun 2017	5,478	9,393	37,091	70,837	4.77 GB
Jul 2017	6,181	9,238	36,401	71,436	4.02 GB
Aug 2017	3,042	4,190	14,836	30,351	1.84 GB
Sep 2017	0	0	0	0	0
Oct 2017	0	0	0	0	0
Nov 2017	0	0	0	0	0
Dec 2017	0	0	0	0	0
Total	43,095	68,389	199,238	496,320	39.06 GB

2017 DCHAS Election Results

2017 Division of Chemical Health and Safety Election

Open from 12:01 AM, May 15, 2017 to 11:59 PM, May 31, 2017

Total voters for ballot: **287** (25.6% of 1121 total codes; and 2 additional abstentions; 0.2%); as of 11:27:23 AM on Saturday, June 3, 2017; (U.S. Eastern).

Sort by: ⊙rank order | ○ ballot order

| Display write-ins cast | Display voter comments | Display live vote plot

Chair-elect (278 total voters this ballot; vote for 1):

Votes	Name	%
277	**Sammye Sigmann**	99.6%
1	**Optional write-in**	0.4%
1	Write-ins	

Secretary (278 total voters this ballot; vote for 1):

Votes	Name	%
275	**Monique Wilhelm**	98.9%
3	**Optional write-in**	1.1%
2	Write-ins	

Councilor (282 total voters this ballot; vote for 1):

Votes	Name	%
157	**Frankie Wood-Black**	55.7%
73	**Brandon Chance**	25.9%
51	**Doug Walters**	18.1%
1	**Optional write-in**	0.4%

Member-at-Large (275 total voters this ballot; vote for 1):

Votes	Name	%
129	**Ellen Sweet**	46.9%
70	**Kimi Brown**	25.5%
41	**Joe Crockett**	14.9%
35	**Kali Miller**	12.7%
0	**Optional write-in**	0.0%

Electronic voting by Vote-Now.com

Summary Report:
Baseline Survey of Academic Chemical Safety Information Practices

Survey conducted by the American Chemical Society's
Divisions of Chemical Health & Safety and Chemical Information
Report Developed by the Committee on Chemical Safety's Safety Advisory Panel

DRAFT August 4, 2017

In 2016, the American Chemical Society (ACS) identified ***safety*** as a core value of the society.[1] This decision is an outgrowth of ongoing national discussions about the best approach to improving the safety culture of research laboratories.[2] One critical element needed to move towards a more effective safety culture is increased emphasis on ***risk assessment skills for chemists***, particularly in the research environment. However, there are very few data available concerning the current training or practices of the academic laboratory sector in this regard. For this reason, the ACS Divisions of Chemical Health and Safety (CHAS) and Chemical Information (CINF), and the Committee of Chemical Safety (CCS) partnered to survey academic chemists on their risk assessment practices, training and education. This report provides an overview of the survey development process and summarizes the results from the first cohort of chemists to take a survey on this topic. The complete results are available upon request.

The overall aim of this effort is to support continuous improvement in the risk assessment practices in the academic chemistry sector. As described in the ACS Central Science Editorial, *Ingredients for a Positive Safety Culture*[3], ACS leadership has the opportunity to support incorporation of safety culture into emerging expectations for education, publishing and responsible conduct. Several chemical safety training and information efforts are currently underway among the CHAS, CINF and Chemical Education (CHED) technical divisions, supported by previous innovative project grants and divisional strategic planning efforts. ACS outreach to the broader membership and development of technical and cultural resources that support best risk assessment practices can help reinforce these efforts. An example of such outreach is as the emerging partnership between the Committee on Chemical Safety and the ACS Education Office around safety education materials.

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[1] ACS Strategic Plan for 2017 and Beyond, http://strategy.acs.org

[2] Some recent publications on this topic are listed at the end of the summary.

[3] *Ingredients for a Positive Safety Culture, ACS Cent. Sci.*, **2016**, *2* (11), pp 764–766, Carolyn R. Bertozzi (Editor-in-Chief), http://pubs.acs.org/doi/abs/10.1021/acscentsci.6b00341

Introduction

The survey was funded by an ACS Innovative Project Grant to the CHAS and CINF Divisions and developed in collaboration with the Cornell Survey Research Institute. The goal of the survey was to benchmark current information practices related to laboratory scale chemical risk assessment and identify gaps in chemists' education that can be met by targeted training, information tools, or educational materials. Findings from this survey are also expected to inform broader ACS initiatives in chemical safety education and communication outreach efforts.

Focus groups were initially conducted to engage a variety of chemistry lab stakeholders, including high school and undergraduate faculty, undergraduate students, graduate students and academic research faculty. From these interviews, we learned that the uses of safety information by these groups are distinct enough to warrant separate inquiries into their risk assessment practices. We also found that these different stakeholders had different support needs for their safety efforts. For example, in discussions with high school teachers, a clear need was expressed for more chemical safety information tailored to safety needs at earlier stages of both teachers' and students' science education. To this end, the CCS Safety Advisory Panel has partnered with ACS education offices to begin safety education outreach to secondary chemistry teachers.

As a result of the focus group discussions, the survey instrument was targeted to academic laboratory researchers as a distinct sector often conducting complex or novel processes. The survey was distributed to over 800 ACS approved Bachelor's programs during two weeks in early 2017. Department chairs were asked to distribute the survey to anyone currently involved in chemistry research, including students, postgraduate students, faculty and research staff. 283 responses were received, and the demographics reflect the overall ACS population of chemical specialties. About 60% of the respondents hold PhDs and half reported more than 10 years of laboratory experience.

Summary of Findings

Several key themes regarding use of chemical safety information and risk assessment processes emerged from the study. These themes are discussed in more detail in the notable findings section.

1- Most researchers report some familiarity with formal safety management processes similar to those practiced in industry settings, however report little use of them in their day to day work.
2- Researchers generally report that available information is adequate to conduct risk assessments, however, few consistently share safety information in their publications.
3- Safety Data Sheets (SDS) are the primary chemical safety information source among researchers, however, they do not optimize the use of the information available in these documents, and most do not critically validate or augment this information with other authoritative safety information sources.
4- Consultation with colleagues is a predominant practice when planning for safety, which can re-enforce either good or less desirable safety practices, especially among learners.

These findings suggest two important gaps between best practices and documentation for risk assessment and day to day reality in the academic research environment. First, as noted by the Chemical Safety Board's 2011 report on academic research safety, physical hazards (fires and

explosions) tend to receive less attention by chemists in the planning process than chemical hazards such as unplanned reactions or unknown toxicities. High consequence lab incidents can result from this neglect of physical hazards.[4]

The second gap is education in critical analysis of safety information sources, which is a core skill in developing adequate laboratory risk assessments. For example, comparing Safety Data Sheets from different suppliers often reveals significantly different hazard profiles for the same chemical. In addition, because SDSs do not address hazards associated with chemicals in combination with each other, review of a single SDS is unlikely to be adequate for experimental process planning. For these reasons, information literacy skills applied to the use of safety information is an important element in a complete risk assessment. Chemical safety education can thus engage multiple chemistry research skills outlined by the ACS CPT.[5]

Recommendations

The ultimate goal of the sponsoring divisions is to address this gap in general and, more specifically, support the ACS Board of Editors' recent policy of including safety precautions in research articles[6]. We believe that this can be done through improved safety programming and chemical safety information sources and tools. The survey results will continue to inform opportunities for CHAS, CINF and CHED to partner in supporting improved lab risk assessment, management and documentation. Examples of such programs include:

- Maintaining and developing new CHAS national and regional meeting workshops and webinars;
- Further development of chemical safety information tools by CINF members; and
- Continued development of guidance documents by CHED and the Committee on Chemical Safety.

We recommend that the collaborating technical divisions, the CCS and other stakeholders pursue emerging safety related training and information opportunities such as:

1- Provide interactive training in critical reading, evaluation and use of SDSs and other authoritative safety information sources;
2- Develop further training and educational materials for formal risk assessment methodology and safety reporting appropriate for research laboratories; for example, to support;
3- Specifically target training for lab leadership and other lab trainers (e.g., PIs, TAs) to model best practices and incorporate risk assessment into educational settings;

---

[4] 2010 Texas Tech Laboratory Accident; Case Study Identifies Systemic Deficiencies in University Safety Management Practices, http://www.csb.gov/csb-releases-investigation-into-2010-texas-tech-laboratory-accident-case-study-identifies-systemic-deficiencies-in-university-safety-management-practices/

[5] *Guidelines for Bachelor's Degree Programs* ACS Committee on Professional Training, https://www.acs.org/content/dam/acsorg/about/governance/committees/training/acsapproved/degreeprogram/laboratory-safety.pdf

[6] ACS journals enact new safety policy, C&EN Volume 94 Issue 48, pg 7, December 5, 2016, Jyllian Kemsley, http://cen.acs.org/articles/94/i48/ACS-journals-enact-new-safety.html

4- Include safety information more broadly in chemical information sources as core content and promote development of interactive tools to deliver safety information to researchers on a "just-in-time" basis as part of the research planning process;
5- Deploy the survey regularly to determine the impact of increased training and risk assessment support tools.

The audience for these outreach efforts would include faculty, research staff, teaching staff, teaching assistants, graduate students and others involved in laboratory research in higher education. In the future, the findings from this survey can be used as a benchmark to track changes in chemists' safety awareness and information practices over time, and the impact of increased training and risk assessment support tools.

Related ACS Activities

- DCHAS Website: *https://dchas.org/*
- DCHAS Workshops: *https://dchas.org/workshop-registration-page/*
- ACS Safety Webpages, managed by the CCS: *http://acs.org/safety*
- Division of Chemical Education Safety Committee: http://divched.org/committee/safety
- CINF safety information initatives:
    - PubChem Laboratory Chemical Safety Summaries (LCSS): *https://pubchem.ncbi.nlm.nih.gov/lcss/*
    - Pistoia Alliance Chemical Safety Library: *http://www.pistoiaalliance.org/projects/chemical-safety-library/*

Related Documents

- *Safe Science: Promoting a Culture of Safety in Academic Chemical Research*. National Academies Press (2014)
- *A Guide to Implementing a Safety Culture in Our Universities*. (2016) Association of Public and Land-grant Universities
- Safety Culture page from ACS web site (accessed August, 2017) https://www.acs.org/content/acs/en/chemical-safety/safety-culture.html

IPG Project Team

- Robin Izzo, Princeton University, rmizzo@Princeton.edu
- Leah McEwen, Cornell University, lrm1@cornell.edu
- Ralph Stuart, Keene State College, ralph.stuart@keene.edu
- Ellen Sweet, Cornell University, ems325@cornell.edu

Feel free to contact the project team members for further information regarding this report or the survey.

Notable Findings – *Initial Focus Groups*

- The primary outcome of the focus groups was establishing that the needs of the potential audiences for the survey vary significantly within the education sector. For this reason, we limited the scope of survey to the laboratory research community and approach the secondary education community through different channels.
- Discussions with the various stakeholders helped identify differences in vocabulary between bench chemists and EHS professionals. These differences led to rewriting of some survey questions in language more appropriate to the laboratory audience.

Notable Findings – *Demographics*

- A total of 238 surveys were completed among the 581 people who started the survey. The average survey was completed in 15 minutes. An incentive for participation was provided in the form of random drawings for gifts cards.
- Almost all respondents were practicing chemists and research interests were well distributed across the primary sub-disciplines of chemistry: *organic, inorganic, analytical, physical* and *biological*. Respondents were evenly split in experience, with 50% having more than 10 years of experience in research and 50% with less. Nearly all of those with more than 10 years of research experience hold PhDs, while three quarters of those with less than 10 years of experience do not hold PhDs.

Notable Findings – *Information Practices*

- *SciFinder* is the most common tool for searching chemical information, with over half of the respondents using it as their go-to source. The second most popular tool for searching is *Google*. The use of Google is higher (35%) among the respondents with less than 10 years of experience in chemistry research than among the more experienced respondents (20%).

- Over half of the respondents reported searching and using safety information in developing experimental procedures, and 80% consider the available information adequate to support risk assessment.

- Most respondents consider their own safety documentation adequate for external reviewers. However, over a third have never included safety information in research publications and less than a quarter consistently provide this information. This trend is more pronounced among researchers with less than 10 years of research experience.

- SDSs are the primary chemical safety information source for most respondents. Most are looking at the sections on hazard identification (2) and handling & storage (7). Half are also looking at first aid (4), exposure control/personal protection (8), physical & chemical properties (9), stability & reactivity (10), and waste disposal (13).

- Less than 10% of the respondents report using SDS section 6 on accidental release or section 5 on firefighting measures. These are two of the most common laboratory accident scenarios reported by EHS professionals who serve these populations. This is an example of lab workers informally "outsourcing" those concerns to EHS staff.

- Half or more report specific chemical properties and incompatibility information as the most useful sections, and most would expect to find this information in SDSs, although only half report using these sections. SOPs and hazard alerts were other expected sources for incompatibility information.

Notable Findings – *Risk Assessment Practices*

- Over 1/3 of respondents with less than 10 years of research experience have not developed safety procedures. Communication among researchers about safety procedures appears to be about half through written methods and half through verbal or not done by the respondent.

- Most researchers have little or only moderate concern about non-chemical hazards. This finding suggests that physical hazards are not recognized as significant components for risk assessment; respondents with less than 10 years of experience were generally less concerned.

- Safety training and education questions suggest that those with less or more than 10 years of research experience learn this material early in the course of their formal chemistry education, when safety concerns are simpler. Continued emphasis on earlier training may have notable impact over time. Reported familiarity with GHS may be a good benchmark as this training is increasingly mainstreamed into education.

- More than 50% of the respondents report using selected safety tools or procedures such as Standard Operating Procedures, lab supervisor or group review of risk assessments. However, less than 15% report using formal risk assessment methodology, such as a Job Hazard Assessment (JHA).

- Informal risk assessment activities are more common than formal approaches. Review of SDSs, consulting with colleagues, conducting Internet search for specific information and/or reviewing safety information on chemical supplier or institutional sites are generally done by more than 50% of the respondents.

- Over 80% of respondents feel in general that they have access to safety equipment or services required for their laboratory work. The most satisfaction was reported for waste disposal services, while institutional oversight was reported as adequate less often. Those with less than 10 years of experience were generally more satisfied.

Notable Findings – *Lessons Learned Practices*

- Some respondents report searching for information about laboratory safety incidents and are primarily interested in root causes of the events. Some also reported more specific interest in operating irregularities, unexpected reactions, and to a lesser extent incompatibilities or known reactions happening in unexpected ways. Very few reported specific interests in pressure, heat or housekeeping, although these are top concerns for EHS staff.

- Half of the respondents reported having institutional lessons learned programs and participate in them. Most respondents think this information is helpful. Respondents with less than 10 years of experience were less certain about these programs at their institutions. Those that don't participate in such programs report being concerned about legal or administrative repercussions, time commitment and lack of clarity in reporting.

ACS Division of Chemical Health & Safety

Fall 2017, Washington D.C. – 254th National Meeting

Chair-Elect Report: Joe Pickel

Looking over several previous meeting agendas, there is a little noticed absence of a chair elect reports, so there was a bit of trepidation with respect to breaking tradition. However, as I prepare for next year, I thought it would be best to use this opportunity to set the stage for next year and engage the division in the process.

Anyone reading the EC mailing list in the past week has seen the early edition of the proposals for actions and request for committee chairperson appointments and re-appointments for next year. These have been updated as a result of the feedback that has been received.

The proposed changes to committees and chairperson assignments, starting in San Francisco and continuing today, have lead to very good discussions about the status and functionality of the current committees, assignment of chairperson, liaison and other roles and implications of reimbursing members who serve in these roles. *By no means is this conversation over!*

We have also been reminded throughout this discussion of how the division works internally and in coordination with ACS and other organizations, both in ways that are written in our manuals and histories, as well as through our tribal knowledge. As we approach the 40th anniversary of the division- it is incumbent upon us to capture and disseminate this knowledge to guarantee the sustainment of the organization. I have been buoyed by the interest in the Volunteer and New Member guide, and questions coming up on the list-servs asking – How does the division do this; and What is our relation to CCS or this other organization? - It is a good sign both that folks are interested in the Division, and more importantly … that we all want to get it right!

I'm looking forward to next year!
Joe

Action for the EC: Creation and Dissolution of committees

- **Proposal: I motion that the EC approve the creation of a 'Sponsorship' committee, and dissolve two committees- the 'Public Relations' and the 'Archivist/Speaker's Bureau' committees.**

- **In addition, I motion that the 'Web page and Social Media' committee, 'Publicity' committee be dissolved and their functions assigned to the 'Membership' Committee**

- Functional Statements/Justification:
    - Creation of the Sponsorship committee: (Note- Other suitable titles such as 'Fundraising' committee with the same functionality are proposed for consideration). The Sponsorship Committee seeks to support the division and its initiatives through the solicitation of monetary or in-kind donations. The committee works with the treasurer to ensure compliance with financial requirements and proper disbursement of funds and the awards, social and publicity committees to develop award, event or program sponsorship and recognition activities. *The appointed Chair should further develop this functional statement, propose a different title for the committee (if warranted), and list "Suggested Tasks and Time Frames" for inclusion in the Division's Administrative Manual.*

    - Dissolution of the Public Relations Committee: The functions of the public relations committee are being executed by other committees including the Publicity, Website committee and the Regulatory and Public Affairs committee. As a result, this committee is no longer required.

    - Dissolution of the Archivist/Speaker's Bureau: The functions of the Archivist and Speaker's Bureau Committee, per discussion at the Spring 2017 ACS National Meeting, are no longer warranted whereas the division does not currently and has not supported a speaker's bureau in several years and many historical articles are in possession of the Chemical Heritage Foundation (CHF) in Philadelphia, Pennsylvania. Members of the EC in the Philadelphia area have volunteered to assess and/or inventory the articles at the CHF. This inventory and historical information of the committee shall furthermore be kept by the Secretary in accordance with the Division's records retention requirements.

    - Dissolution of the **'Web page and Social Media' committee, 'Publicity' committee** and assignment of these functions to the 'Membership' committee. The functions of this committee overlap significantly with the overall intent of all actions to encourage participation in the division and increase value of the division to its membership through various outreach activities. The consolidation of these committees is supported by the current chairs of these committees (Pickel, Stuart, Chance). *Note: Because Membership is a Standing committee as defined by Bylaw V, it is necessary to retain this name for the combined committees at this time.*

- Requirements (from the CHAS Administrative Manual Page 46): "Any member of the Division's Executive Committee can suggest the formation of a committee. Suggestions should be supported with a functional statement (example in Section 1 of this manual). Committees will be created when a majority vote of the Executive Committee concurs.

    - Dissolution of Committees: Committees can be dissolved by majority vote of the Executive Committee.

    - Time and place for creating and dissolving committees: Place - Location of the national ACS meeting. Time -- Time of the national ACS meeting.
      - Notification: The creation and dissolution of committees should be placed on the agenda for the Executive Committee meeting for action.

Earlier this month, as part of my duties as Chair Elect, I requested the appointment or reappointment of Committee chairpersons and liaisons for 2018. The attached leadership roster (submitted on 8/12/17, so it necessarily will not reflect any discussions or actions taken by the EC in the interim) supposes the acceptance of the proposed actions above. This roster will be updated and resent to the EC immediately after the meeting and I will again request that any chair or liaison ***NOT*** interested in the appointment/re-appointment to this position should contact me no later than September 1, 2017

Attachment 4a

Division of Chemical Health and Safety 2018 Leadership (Proposed August 2017)

OFFICERS

Chair
Joe Pickel
Oak Ridge National Laboratory
pickeljm@ornl.gov

Chair-Elect
Sammye Sigmann
Appalachian State University
sigmannsb@appstate.edu

Secretary (2018-2020)
Monique Wilhelm
University of Michigan-Flint
mwilhelm@UMFLINT.EDU

Treasurer (2016-2018)
Neal Langerman
Advanced Chemical Safety
neal@chemical-safety.com

Immediate Past Chair,
Nominations Committee (S) Chair
Harry Elston
Midwest Chemical Safety
helston@midweschemsafety.com

Councilors (term of office)
Frankie Wood-Black (2018-2020)
Sophic Pursuits
fwblack@sophicpursuits.com

Debbie Decker (2017-2019)
University of California- Davis
dmdecker@ucdavis.edu

Brandon Chance (Alternate 2018-2020)
Southern Methodist University
bchance@MAIL.SMU.EDU

Doug Walters(Alternate 2017-2019)
Retired
waltersdb@EARTHLINK.NET

Members At Large
Ellen Sweet (2018-2020)
Cornell University
ems325@CORNELL.EDU

Tim Black (2016-2018)
?
Email

CANN Sub-Division Chair
Name
Company
email

Committee Chairpersons
(S) – Standing Committee

Awards (S)
Doug Walters
Retired
waltersdb@EARTHLINK.NET

Long Range Planning (S)
Sammye Sigmann
Appalachian State University
sigmannsb@appstate.edu

Membership and Outreach (S)
Ralph Stuart
Keene State College
Ralph.Stuart@KEENE.EDU

Programming
Debbie M. Decker
University of California, Davis
dmdecker@ucdavis.edu

Publications Committee (S) **JCHAS Editor**
Harry Elston
Midwest Chemical Safety
helston@midweschemsafety.com

Regional Meetings
Mark Lassiter
Montreat College
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Regulatory and Public Affairs
Ellen Sweet (2018-2020)
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Social
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Sponsorships
Chris Incarvito
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chris.incarvito@yale.edu

Training and Workshops
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WC Environmental, LLC
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Audit Committee
Mary Beth Koza
University of North Carolina
mbkoza2@gmail.com

Liaisons

American Industrial Hygiene Association
Bill Galdenzi
Boehringer-Ingelheim
Bill.galdenzi@boehringer-ingelheim.com

American Institute of Chemical Engineers
Dennis Hendershot
Company
d.c.hendershot@att.net

ACS International Affairs Committee
Douglas Walters
Retired
waltersdb@EARTHLINK.NET

National Registry of Certified Chemists
Russ Phifer
WC Environmental, LLC
rphifer@WCENVIRONMENTAL.COM

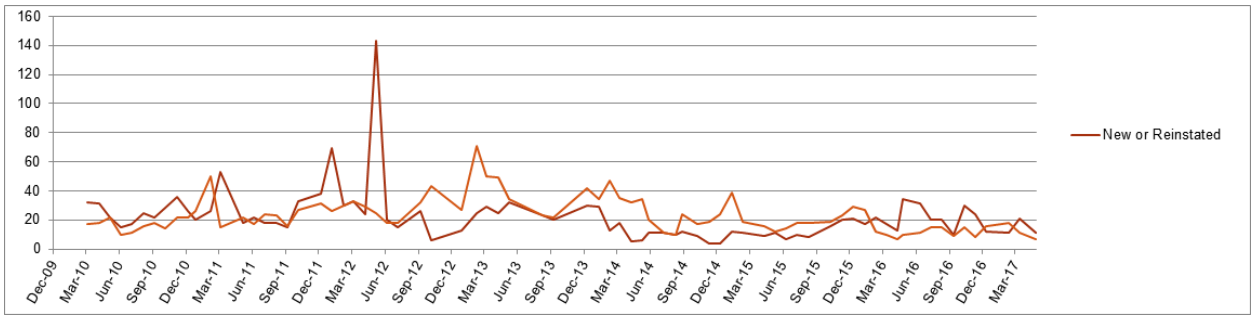
Committee on Chemical Safety
Ken Fivizzani
Nalco-Retired
kfivizzani@wowway.com

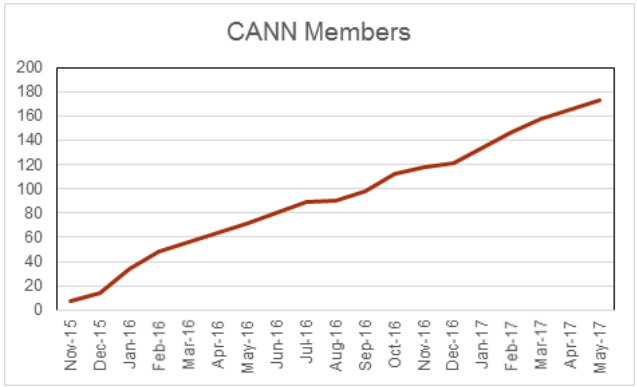
ACS Division of Chemistry and the Law -
and-
ACS Corporate Associates
Neal Langerman
Advanced Chemical Safety
neal@chemical-safety.com

Membership Committee Report: Joe Pickel

- Membership currently at 1149 (up from 1122 this time last year)
    - Most growth is associated with CANN Subdivision (~10/month); CHAS holding at 1000
- Final version of CHAS new member/volunteer guide released on website and DCHAS-L
- Ralph taking the reins for Membership in 2018 (if not sooner!)
    - Proposal to combine Membership, Publicity and Web Page committees into one "Outreach committee"
- Attachments: June 2017 CHAS membership Demographics report

CHAS Activity





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American Chemical Society

Demographics Report

D529 - Chemical Health & Safety Division

As of 30 - Jun - 2017

Member Type

Group	Count	%
Division Affiliate	83	7.22
Emeritus Member	82	7.14
Regular Member	880	76.59
Regular Student Member	40	3.48
Retired Member	31	2.70
Society Affiliate	21	1.83
Student Member - UnderGrad	12	1.04
Total	**1,149**	100.00

Age Group

Group	Count	%
11-20	1	0.09
21-25	12	1.04
26-30	33	2.87
31-35	54	4.70
36-40	63	5.48
41-45	59	5.13
46-50	102	8.88
51-55	124	10.79
56	22	1.91
57	26	2.26
58	18	1.57
59	23	2.00
60	21	1.83
61	25	2.18
62	26	2.26
63	22	1.91
64	25	2.18
65	22	1.91
66	12	1.04
67	19	1.65
68	14	1.22
69	20	1.74
70	16	1.39
71+	137	11.92
N/A	253	22.02
Total	**1,149**	100.00

Gender

Group	Count	%
Female	342	29.77
Male	620	53.96
n/a	187	16.28
Total	**1,149**	100.00

Years Of Service

Group	Count	%
0	14	1.22
1	233	20.28
2	136	11.84
3	71	6.18
4	70	6.09
5	53	4.61
6-10	176	15.32
11-15	88	7.66
16-20	110	9.57
21-25	79	6.88
26-30	43	3.74
31-35	50	4.35
36-40	23	2.00
41-45	3	0.26
Total	**1,149**	100.00

Hispanic

Group	Count	%
No	435	37.86
Yes	35	3.05
No Response	26	2.26
N/A	653	56.83
Total	**1,149**	100.00

Ethnic Background

Group	Count	%
African Descent or Black	26	2.23
Asian (Including Pacific Islanders)	44	3.78
Native American (including Alaskan Native)	7	0.60
White (Caucasian)	635	54.55
Other	22	1.89
N/A	430	36.94
Total	**1,164**	100.00

Attachment 4c

Run Date :07/12/2017, 11:31:08

American Chemical Society
Demographics Report

Highest Degree Received

Group	Count	%
Associate	5	0.44
Bachelor	154	13.40
Doctorate	228	19.84
High School	5	0.44
Master	209	18.19
N/A	548	47.69
Total	**1,149**	100.00

Degree Discipline

Group	Count	%
Agricultural/food chemistry	7	0.61
Analytical chemistry	32	2.79
Biochemistry	39	3.39
Biotechnology	7	0.61
Business administration	18	1.57
Chemical education	12	1.04
Chemical engineering	28	2.44
Clinical chemistry	1	0.09
Environmental chemistry	25	2.18
General chemistry	97	8.44
Inorganic chemistry	44	3.83
Materials science	4	0.35
Medicinal/pharmaceutical chemistry	10	0.87
Organic chemistry	77	6.70
Other chemical sciences	8	0.70
Physical chemistry	35	3.05
Polymer chemistry	6	0.52
Other	148	12.88
N/A	551	47.95
Total	**1,149**	100.00

Field of Research

Group	Count	%
Agriculture/Food science	6	0.52
Analytical Chemistry	41	3.57
Applied Chemistry	11	0.96
Biochemistry/Molecular Biology/Biomaterials	13	1.13
Biotechnology/Applied Microbiology	9	0.78
Chemical Information	3	0.26
Computational/computers/informatics	2	0.17
Education	47	4.09
Energy/Petroleum	12	1.04
Engineering	11	0.96
Environmental Science	41	3.57
Forensic	5	0.44
Green Chemistry/Sustainable Chemistry	5	0.44
Health & safety	145	12.62
Inorganic chemistry	18	1.57
Instrumentation design/development	5	0.44
Legal	1	0.09
Materials science	14	1.22
Medicinal/clinical	8	0.70
Organic chemistry	46	4.00
Paints/coatings	5	0.44
Pharmaceutical	18	1.57
Physical chemistry	11	0.96
Plastics/Polymers/Rubber	13	1.13
Toxicology	15	1.31
Other	76	6.61
N/A	568	49.43
Total	**1,149**	100.00

Industry

Group	Count	%
Academic Institution	432	37.60
Engineering/Construction Firm	13	1.13
Government	68	5.92
Hospital/Clinic	12	1.04
Independent Consulting	110	9.57
Independent Laboratory	59	5.13
Manufacturer - Industrial chemicals	59	5.13
Manufacturer - Other	96	8.36
Manufacturer - Petrochemical	17	1.48
Manufacturer - Pharmaceutical Co	31	2.70
Manufacturer-Agricultural	8	0.70
Manufacturer-Biotech/life sciences co	24	2.09
Manufacturer-Environmental/water	5	0.44
Manufacturer-Food/beverage/flavors	15	1.31
Public Utility/Transportation	3	0.26
Retail/Wholesale Trade	8	0.70
Other	66	5.74
No Response	35	3.05
N/A	88	7.66
Total	**1,149**	100.00

Attachment 4c

Run Date :07/12/2017, 11:31:08

American Chemical Society

Demographics Report

Job Title

Group	Count	%
Chemical Technician	23	2.00
Chemist/Scientist	148	12.88
Consultant/Advisor	48	4.18
Engineer	23	2.00
Executive Management	87	7.57
Graduate Student	25	2.18
Health & Safety/Regulatory Affairs Manager	235	20.45
Post Doctoral/Fellow Researcher	7	0.61
Process/Quality Control Manager	20	1.74
Production/Operations Manager	16	1.39
Professor/Instructor/Administrator	203	17.67
Purchasing Manager/Buyer	5	0.44
Research & Development Management	68	5.92
Sales/Marketing/Business Development	10	0.87
Supervisor/Project Leader/Foreman	33	2.87
Undergraduate Student Member	7	0.61
Other	59	5.13
No Response	39	3.39
N/A	93	8.09
Total	**1,149**	100.00

Department

Group	Count	%
Analysis	12	1.04
Corporate Management	30	2.61
Lab Management	36	3.13
Purchasing	2	0.17
QC/Assurance/Validation	14	1.22
Regulatory	82	7.14
Research & Development (R&D)	78	6.79
Research & Teaching	46	4.00
Sales/Marketing/Business Development	11	0.96
Teaching	84	7.31
Technical Services	32	2.79
Other	68	5.92
N/A	654	56.92
Total	**1,149**	100.00

Geographic Area

Group	Count	%
International	117	10.18
United States	1,032	89.82
Total	**1,149**	100.00

Disability

Group	Count	%
No	460	40.03
Yes	17	1.48
No Response	12	1.04
N/A	660	57.44
Total	**1,149**	100.00

Benefits

Group	Count	%
ACS Network	199	8.43
C&EN	399	16.90
Career counseling and resources	28	1.19
Community activities	71	3.01
Educational resources and tools	73	3.09
Legislative Action Network	29	1.23
Local Sections	159	6.73
National or Regional Meetings	141	5.97
Newsletters	170	7.20
None	49	2.08
Personal Benefits	72	3.05
Professional Education and Professional Development	66	2.80
Technical Divisions	223	9.45
Web Edition publications	117	4.96
Other	22	0.93
N/A	543	23.00
Total	**2,361**	100.00

Attachment 4c

Run Date :07/12/2017, 11:31:08

American Chemical Society

Demographics Report

Products

Group	Count	%
Chemical ingredients	198	10.00
Chromatography products	116	5.86
Computational	49	2.47
Contract management services	53	2.68
HPLC	80	4.04
Laboratory products	216	10.91
LIMS	27	1.36
Mass Spectrometers	65	3.28
NMR	38	1.92
None	126	6.36
Pharmaceutical ingredients	22	1.11
Spectroscopy	90	4.55
Supercritical fluid chromatography	8	0.40
Thermal analyzers	21	1.06
Water purification systems	74	3.74
Other	79	3.99
N/A	718	36.26
Total	**1,980**	100.00

Country of Citizenship

Group	Count	%
Algeria	1	0.09
Australia	5	0.44
Belgium	1	0.09
Botswana	1	0.09
CANADA	15	1.31
China	2	0.17
France	1	0.09
Germany	1	0.09
Hong Kong	1	0.09
Ireland	1	0.09
Italy	1	0.09
Japan	2	0.17
Malaysia	1	0.09
Mexico	2	0.17
Nepal	1	0.09
Nigeria	1	0.09
Philippines	1	0.09
Poland	1	0.09
Portugal	1	0.09
Qatar	1	0.09
Romania	2	0.17
Switzerland	1	0.09
Trinidad and Tobago	1	0.09
Turkey	1	0.09
United Kingdom	5	0.44
UNITED STATES	438	38.12
Vietnam	1	0.09
N/A	659	57.35
Total	**1,149**	100.00

PROPOSAL FOR

ACS NATIONAL AWARD FOR ACHIEVEMENT IN SAFETY

Recent developments within the American Chemical Society (ACS) demonstrate safety is an essential component of all research, teaching, education, and outreach efforts. The 2017 ACS Strategic Plan[1] includes safety as a core value, and ACS Publications implemented new reporting requirements for safety in all ACS journals. The ACS/CCS guidelines on safety culture[2], hazard assessment[3], and safety education[4,5] reflect the concern and movement to promote safety, especially within the academic community. ACS must continue to recognize these important efforts in safety and go further by recognizing those individuals or teams across the chemical enterprise who are making exceptional contributions to the safety field. Researchers, educators, and investigators making meaningful contributions to safety should be recognized on a national level to highlight those achievements in the public arena.

Currently, the Division of Chemical Health and Safety (CHAS) annually recognizes contributions to our field with three awards[6]: The Howard Fawcett Award, the Safety Stratus College and University Award, and the Tillmanns-Skolnick Award. Yet these are more focused divisional awards that offer only very limited recognition to the larger ACS audience, the media, and the general public. Considering that CHAS is the one of the few, if not only, divisions whose chief theme transcends all other ACS divisions and the public at large, it is time to elevate publicly the progressive work of those who have committed themselves to chemical health and safety in research, teaching, and outreach. There is currently **no** ACS National Award that recognizes achievements in safety.

Herein we propose to establish a new ACS National Award for *Achievement in Safety*. This award would recognize an individual or a team:

- For outstanding contributions to develop or promote: new safety innovations; exceptional efforts in promoting safety education and teaching; or recognized exemplary safety cultures within organizations or broader venues.
- For outstanding leadership that demonstrates the pursuit and promotion of excellence in safety as recognized by results, outcomes, and testimonies. This leadership would be an example for others to emulate.
- For outstanding achievements in safety that have clear, recognized safety-related impact at local, regional, national or international levels.

In addition to ACS standards for nomination and award, nominees from all facets of the chemical enterprise are eligible. The awardee or at least one member of the team should be an ACS member. Our initial expectation is for the award to be presented every other year, and as funding becomes adequate, we envision this will become an annual award.

Criteria for nomination includes:

1. Detailed description of the safety-related contributions, achievements, and targeted audience including especially new, innovative contributions, achievements, products, or approaches
2. Impact of the safety-related contributions at the local, regional, national, or international level
3. Experience and credentials of the nominee or team including involvement in volunteer efforts for the ACS
4. Recommendations (not to exceed five) - these are letters that provide support and testimony of the worthiness of the nominee for this award (for example, department chairs/managers, supervisors, peers within or outside the institution/company, professionals who value these contributions, or previous students or mentees who understand the contributions of this nominee or team).

CHAS will seek to ensure the quality of these awards by requiring a minimum of 5 nominations are received per award cycle, and review these to ensure that there are always new nominations, not just the same ones each year that did not win previously.

CHAS will seek external funding to support this award. We believe there will be interest in supporting this from many sources. Financial commitment for this award must provide:

- Financial support must be stable and sufficient to support the award
    - Endowment
        - $300,000 for annual awards for non-profits
        - $200,000 for biannual awards (every other year)
        - $450,000 for single supporter (for profit) with name recognition for the award
        - $25,000 of these funds will be temporarily restricted (not available for expenditure) to cover shortfalls in expenses
        - Single supporter
        - Multiple supporters (a National ACS Safety Award Coalition)
- Costs of award (Approximately $10,000 per award)
    - $5000 Cash to awardee or team
    - $500 Certificate
    - $2500 Travel (Maximum allowed)
    - $1420 Administrative Fee for ACS

FUNDING STRATEGIES

Recognizing the significant effort and resources necessary to fund an American Chemical Society National Award, the Division of Chemical Health and Safety (CHAS) is preparing a 3-prong approach to fundraising. This multipart approach, which can be run in parallel without foreseeable conflict, will enable CHAS to leverage opportunities with corporations, individual/private donors, and ACS members alike.

For background the proposed Award was drafted with unanimous support from the CHAS Executive Committee and submitted to ACS with a letter from current Chair, Harry Elston, which reflects the support. Longtime ACS and CHAS member Dr. Robert Hill drafted the award proposal through an iterative process that included discussion with key ACS organizational leadership and those familiar with the awards process. Dr. Christopher Incarvito has volunteered to lead the development campaign and has been in contact with Kathy Fleming and others in the ACS Development Office as the proposal has matured. We are well prepared and fully accept the challenges that face this initiative.

ACS has always had a strong commitment to safety but its recent emphasis makes now, more than ever, the most advantageous time to fundraise. In fact President-elect, Dr. Peter Dorhout, has repeatedly and publicly shared his own desires to elevate the culture of safety through the Society. Dr. Tom Connelly, Executive Director of ACS, recently announced the creation of the new staff position, Manager of Safety Programs. Now is the time to act – this is how our aspirations will become reality:

<u>Corporate Partners</u>

CHAS is fortunate to have strong ties to Corporation Associates (CA) and we expect that some members of CA would enthusiastically support the proposed award. Pending approval by ACS, we will begin a quiet campaign so members have a chance to be introduced to the award, ask questions, and understand the award's mission prior to the distribution of a formal prospectus. This award, unlike longstanding awards rooted deep in other technical divisions, is universal requisite to all CA members.

<u>Major/Individual/Private Donors</u>

As previously mentioned, Kathy Fleming and the ACS Office of Development are aware of this proposal and have discussed strategies that will leverage her offices resources should the proposal be approved. A steady, patient, and consistent approach to corporate, foundation, and major donor engagement will allow us to fundraise for this award but also to introduce these parties to other giving opportunities within DCHAS.

<u>ACS Membership and Broad Crowdsourcing</u>

We will actively seek champions within the ACS Leadership who can, by gravitas, lead a more open fundraising campaign that allows all ACS members to support the ACS safety initiatives.

References

1. American Chemical Society Strategic Plan for 2017 & Beyond, found at http://strategy.acs.org/ (accessed March 2017).
2. ACS Committee on Chemical Safety, *Creating Safety Cultures in Academic Institutions,* ACS, Washington, DC, 2012.
3. ACS Committee on Chemical Safety, Hazard Assessment in the Laboratory found at https://www.acs.org/content/acs/en/about/governance/committees/chemicalsafety/hazard-assessment.html (accessed March 2017); Based on the CCS, *Identifying and Evaluating Hazards in the Research Laboratories,* ACS, Washington, DC, 2015.
4. ACS Committee on Chemical Safety, *Guidelines for Chemical Laboratory Safety in Secondary Schools,* ACS, Washington, DC, 2016.
5. ACS Committee on Chemical Safety, *Guidelines for Chemical Laboratory Safety in Academic Institutions,* ACS, Washington, DC, 2016.
6. Division of Chemical Health and Safety website, found at http://dchas.org (accessed March 2017)

Harry J. Elston, Ph.D., CIH
Chair, Division of Chemical Health and Safety

Dr. Ingrid Montes
Chair, Professional and Member Relations Committee
American Chemical Society

14 June 2017

VIA Electronic Mail – No hardcopy to follow

Dr. Montes,

It is my honor to present a proposal from the Division of Chemical Health and Safety (CHAS) for a new *ACS National Award for Achievement in Safety*. Recent developments within the Society, such as the recent inclusion of safety as a new ACS Core Value, make this proposal both timely and in keeping with the ACS emphasis on safety. We hope that you will find our proposal meets your approval. Should you need clarification or revision of this proposal, please let me know as soon as possible. Dr. Robert Hill will be the coordinator for this award (roberth_hill@mindspring.com).

We are eager to pursue funding for this award and have already designated a lead for this campaign, Dr. Chris Incarvito. He will be in touch with Kathy Fleming to ensure that we conduct our fundraising in accordance with ACS guidelines and procedures. We clearly understand that this award must be approved by P&MR, and then by the ACS Board of Directors. In the spirit of optimism, we will use the upcoming April ACS National Meeting in San Francisco to informally begin our funding campaign for this award.

We appreciate the opportunity to bring safety shoulder-to-shoulder with other ACS National Awards.

Sincerely,

Harry J. Elston

Harry J. Elston, Ph.D., CIH
2017 Chair
Division of Chemical Health and Safety

CHAS Awards Report

Submitted by Doug Walters

The 2017 CHAS Awards will be presented at the annual CHAS Awards Symposium on Sunday afternoon August 20, 2017 in Washington DC.

The **2017 CHAS SafetyStratus Award** for an outstanding undergraduate chemical safety program goes to the Department of Chemistry and the Department of Environmental Health and Safety of Stanford University.

The 2017 **CHAS Howard Fawcett Award** for outstanding contributions to the chemical health and safety will be awarded to Monona Rosso, President of Arts, Crafts & Theater Safety, inc. in New York City.

The 2017 **CHAS Tillmanns-Skolnik Award** for outstanding long-term service to the division goes to Robert H. Hill, Jr. of Stone Mountain GA.

In addition the following people will be made **CHAS Fellows** in recognition of their contribution to the division:

Lawrence M. Gibbs, Stanford University
Dennis C. Hendershot, Chemical Prosess Safety Consultant, AlChE
Robert H. Hill Jr., Centers for Disease Control and Prevention, retired
Kimberly B. Jeskie, Oak Ridge National Laboratories
Ken Kretschman, North Carolina State University
Peter Reinhardt, Yale University
Monona Rosso, Arts, Crafts & Theater Safety, inc. NY.
Ellen Sweet, Cornell University

Nominations are open for 2018 awards and must be received by Jan. 1, 2018.
1 nomination for the Fawcett award has been received.

CHAS Workshops Committee Report

Washington, DC Fall Meeting 2017

We are set for high attendance for our workshops in Washington. While several workshops were canceled due to insufficient registration, four will be held, with total pre-registration of 44 attendees. Two Friday and two Saturday workshops will be held – Lab Safety & Lab Waste on Friday, and Chemical Hygiene Officer & Reactives Chemistry on Saturday.

We continue to provide the opportunity to try out new workshop ideas. Anyone who has a concept for a new workshop should provide an abstract and outline, as well as describing your target audience. These workshops provide an important revenue source for the Division as well as an opportunity for members to meet continuing education desires and requirements. Please encourage attendance in your organizations.

Russ Phifer
Workshops Chair

Programming Committee Report

Debbie Decker and Joe Pickel

The Spring 2017 Meeting in San Francisco…… was GREAT!

For this meeting, we again have a full line-up of programming. The symposia are listed here, with papers listed in the CHAS at a Glance:

- **Division of Chemical Health & Safety Awards**
- **Soft Skills in Training & Interactions**
- **Building a Safety Culture Across the Chemistry Enterprise (Presidential)**
- **Cannabis Processing: Innovations & Legal Protections**
- **CHAS Poster Session / Sci-Mix**
- **Chemophobia: Communicating Chemistry**
- **Building a Safety Culture Across the Chemical Enterprise (CHAS)**
- **Emerging Trends in Research Operations**
- **Analytical, Environmental & Regulatory Challenges with Legalized Cannabis (AGFD)**

For Spring 2018 in New Orleans, the Meeting Theme is "Nexus of Food, Energy and Water" and the symposia which appear in the Call for Papers include the following:

- Ask Dr. Safety: Integrating Research and Safety (Langerman; with CCS)
- Safety and Energy Research and Production (Jeskie; with CCS)
- Water Supply Safety (Wilhelm; with CCS, ENVR)
- Implementing ACS Safety Education Guidelines (Sigmann, Howson; with CCS, CHED, AACT)
- Reproductive Hazards (Izzo)
- CHAS Poster Session/SciMix (Pickel)
- Heidolph North America's Cannabis Chemistry Subdivision Scholarship symposium
- Women in Cannabis: Shaping an Emerging Industry
- Separation Science and Technology in the Medical Cannabis and Hemp Industry
- Formulation of Cannabis Products: More than just THC and CBD

MAPS opens August 21, 2017 and closes on October 16, 2017 - Get those papers coming!

John Palmer and Joe Pickel are in contact with the ACS President-Elect regarding possible Presidential symposia for 2018.

Planning for the Boston Meeting in Fall 2017 is in its early stages. The theme for this meeting is "Nanoscience, Nanotechnology & Beyond." The Call for Papers deadline will most likely be in early DECEMBER 2017, and MAPS will likely be open for abstracts in January 2018. Proposed symposia to date include:

- CHAS Awards Session
- Safety of Nanotechnology (Organizer: Pickel; Co-sponsored with IEC, possibly PRES)
- Ask Dr. Safety: *TOPIC TBD?*
- CHAS Poster Session / Sci-Mix (Organizer: Volunteers?)
- Safety in Publications

Monday Presidential Sessions

Marriott Marquis Washington, DC,
Marquis Ballroom Salons 1/2

Institutional & Enterprise Level Efforts to Developing a Safety Culture

Organizer: Allison Campbell
8:30: Introductory Remarks.
8:40: The chemical Safety Board: Safety is good business and good policy. *V. Sutherland*
9:10: Safety goggles aren't just for nerds. *T. George*
9:40: Changing the federal oversight model of the Department of Energy National Laboratories. *J. McBrearty*
10:10: Are you prepared for a journey? *K. Jeskie*
10:40: Panel Discussion

Grassroots Approaches to Developing a Safety Culture

Organizer: Allison Campbell
1:00: Introductory Remarks.
1:10: Improving safety in the chemical enterprise through transparent sharing of best safety practices: The Dow Laboratory Safety Academy delivers safety information to all. *M. Jones, L. Sellor*
1:40: Back to (safety) basics at Northwestern. *M. Blayney*
2:10: Building a safety mindset: An undergraduate's perspective on chemical safety in academia. *N. Fredstrom*
2:40: Implementation of enhanced science classroom safety standards and chemical hygiene plans at the high school level. *B. Kennedy*
3:10: VPP – past successes and future challenges. *D. Kalinowski*
3:40: The Joint Safety Team: A researcher-led initiative for improving academic safety culture. *C. Gee*
4:10: Panel Discussion.

WORKSHOPS

(see http://www.dchas.org for registration information)
All workshops are at the Walter E. Washington Convention Center, from 8:30AM-4:00PM

Fri. Aug . 18, 2017
- **Laboratory Waste**
  208A/B
- **Laboratory Safety**
  209A

Sat. Aug. 19, 2017
- **Chemical Hygiene Officer**
  208A/B
- **Reactives**
  209A

Coffee is available at 8:00 AM, One hour (no host) lunch break.

Executive Committee Breakfast

Date: Sunday Aug. 20, 2017
Time: 8:30 to 12:00
Location: Washington Convention Center, 146C

CANN Luncheon

Date: Monday Aug. 21, 2017
Time: 11:30 to 1:00
Location: Washington Convention Center, 145A

Social Hour

Monday Evening, Aug 21, 2017
5:30 PM - 7:30 PM
District Distilling Co.

1414 U St. NW, Corner of 14th & U st.
Hosted by CHAS & SCHB

Monday, Sci-Mix

Washington Convention Center, Halls D & E

Organizer: J. Pickel
8:00 - 10:00
- Mapping laboratory risk assessment resources. *SR. Stuart*
- Division of Chemical Health and Safety Information Poster. *J.M. Pickel*
- Catching up with Runaway HotPlates. *J.M. Pickel, K.J. Bush, M. Mathews*
- Improving safe use of pressure systems in chemistry laboratories. *J.M. Pickel, K.B. Jeskie*
- Chiral/achiral analysis of naturally occurring cannabinoids using a new sub-2 µm chiral stationary phase with ultra high performance SFC-MS. *M.J. Wilcox, S. Anderson, G. Mazzoccanti, F. Gasparrini, O. Ismail, A. Ciogli, C. Villani*

Attachment 8a

ACS Chemistry for Life™

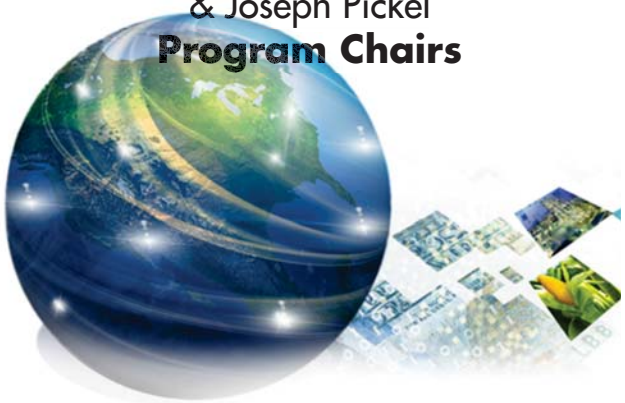
254th ACS National Meeting & Exposition

Washington DC
April 20-24, 2017

CH&S
CONNECTING CHEMISTRY AND SAFETY

DIVISION OF CHEMICAL HEALTH AND SAFETY

Debbie Decker,
& Joseph Pickel
Program Chairs



Please plan on attending the Division of Chemical Health and Safety's Technical Program and Workshops in Washington DC, August 2017. We have listed for your consideration our workshops and technical programming. We believe we have put together the best technical program to help you be successful and work safely in your laboratory.

Sunday Sessions

Walter E. Washington Convention Center, 209C

Division of Chemical Health & Safety Awards - Oral
Cosponsored by CCS
Organizers: D. B. Walters
1:30: Opening Remarks.
1:35: Make safety habits by finding your cues, routines, and rewards for safety! *R.H. Hill*
2:00: Chemical Safety: The state of the arts. *M. Rossol*
2:25: Stanford's Laboratory Safety Culture: From Chemistry to the Campus - Part 1: Department of Chemistry Teaching Laboratories. *C.T. Cox, S. Chan, M. Dougherty*
2:35: Flipped classroom techniques in safety training. *R.M. Izzo*
2:50: Stanford's laboratory safety culture - from chemistry to the campus - Part 2: Advancing institutional safety culture throughout the campus. *L.M. Gibbs, R. Furr, M. Dougherty*
3:15: Closing Remarks.

Soft Skills in Training & Interactions - Oral
Cosponsored by CCS
Organizers: R. M. Izzo
3:30: Opening Remarks.
3:35: Elements of Leveraging Soft Skills. *K. Angjelo*
3:55: Be Prepared - Things to do before EHS interactions with lab. *R.M. Izzo*
4:20: Developing and Maintaining Relationships with Research: Who, How, and Why? *B.S. Chance*
4:45: Supporting development of chemical risk assessment skills. *R. Stuart*

Monday Sessions

Cannabis Processing: Innovations & Legal Protections - Oral
Walter E. Washington Convention Center, 209C
Cosponsored by CCS
Financially supported by CANN
Organizer & Presiding: J. Marcu, E.M. Pryor
1:30: Introductory Remarks.
1:40: Purification strategies for removing undesirable natural components and contaminants from cannabis extracts. *M.J. Wilcox, J. Marcu*
2:05: Traditional cannabis processing: Protecting indigenous knowledge. *K.S. Hylton*
2:30: Cannabis data: Analysis to analytics. *S. Sguera*
2:55: Intermission.
3:10: Cannabis Grow Facilities: Identification of Hazardous Wastes found at a Cannabis Grow Facility; the problem and a proposed solution for Environmental Health Departments. *D. Keenan*
3:35: Terpenes and terpenoids of cannabis: A medical review. *M. Troiani*
4:00: Streamlining Extraction and Formulation for Customized Cannabis Concentrates. *M. Roggen*
4:25: Panel Discussion.
4:35: Concluding Remarks.

Tuesday Sessions

Walter E. Washington Convention Center, 209C

Chemophobia: Communicating Chemistry - Oral
Cosponsored by CCS
Organizer: R. Stuart, E. Sweet
8:00: Introductory Remarks.
8:05: Chemicals: The good, the bad, and the ugly. *S.B. Sigmann*
8:35: The good, The bad and the uncertain: Public perception of the chemical enterprise. *M.E. Jones*
9:05: Role Communications play in Laboratory Safety. *S. Morrissey*
9:35: Developing design principles for 'lesson learned' laboratory safety videos. *H. Weizman*
10:05: Intermission.
10:15: It's no accident that many journalists don't write clearly about lab safety incidents. *B. Benderly*
10:45: Hazmat event reporting in the media. *R. Stuart* **11:15:** Risk Communication for the Non-Chemist (and Chemist). *R.M. Izzo, K. Angjelo, S. Elwood*
11:45: Panel Discusion.

Break

Building a Safety Culture Across the Chemical Enterprise - Oral
Cosponsored by CCS
Organizer: J. Palmer, J. M. Pickel
1:30: Introductory Remarks.
1:35: Challenges and opportunities of building and promoting safety culutre with a federal agency. *R. Meidl*
2:00: How can we build sustainable safety culture: Safety training vs Safety education? *N. Bharti*
2:25: .Challenges and Rewards in Enforing Laboratory Safety and Training - First Year on the Job. *R. Malaisamy*
2:50: Safety guidelines for the chemistry professional. *K.P. Fivizzani*
3:15: Intermission.
3:30: Partnering with faculty and staff towards improved safety culture. *S. Elwood, R.M. Izzo, K. Angjelo*
3:55: Development and implementation of a researcher oriented chemical-safety support program at a 1st tier academic research institution. *J.G. Palmer*
4:20: Establishing a sustainable safety culture in academic research labs. *K.A. Miller*
4:45: Concluding Remarks.

Wednesday Sessions

Walter E. Washington Convention Center, 209C

Building a Safety Culture Across the Chemical Enterprise -Oral
Cosponsored by CCS & PROF
Organizers: J. Palmer, J. M. Pickel
8:30: Introductory Remarks.
8:35: Safe Operating Cards (SOCs): Open Communication Helps Best Practices from Industry Move to Academia. *A.J. Miller, I. Tonks, C.L. Pitman*
9:00: GHS Information Integration in PubChem. *J. Zhang, P. Thiessen, A. Gindulyte, E. Bolton*
9:25: Pharmaceutical Industry Best Practices in Lessons Learned: ELN implementation of Merck's Reaction Review Policy. *R.A. Sayle, J.W. May*

Emerging Trends in Research Operations - Oral
Cosponsored by CCS
Organizer: J. M. Pickel
Organizer & Presiding: C. D. Incarvito
10:00: Introductory Remarks.
10:05: Framingham State University – Science Building. *J. Blount*
10:30: Safe and appropriate application of filtered fume hoods. *K. Crooks*
10:55: iLab operating software materials management. *C. Lopes*
11:20: Monitoring VOCs Within Flammable Liquid Chemical Storage Cabinets for Laboratory Safety. *A.E. Norton, K. Brown, W.B. Connick, A. Doepke, F. Nourain*
11:45: Concluding Remarks.

Break

1:30: Introductory Remarks.
1:35: Multidisciplinary research institutes and the challenges they bring. *S. Elwood, R.M. Izzo, K. Angjelo*
2:00: Convergence of Research Operations and Safety: A mutually beneficial partnership *K. Heard*
2:25: .Role of the EHS Professional in Laboratory Design. *M.B. Koza*
2:50: Taking safety management to the next level: Moving from assumptions to reality. *S. Schwartz-Hinds, N. Watson*
3:15: Intermission.
3:30: Designing and operating facilities to support the safe conduct of research activities. *J.M. Pickel, K.B. Jeskie*
3:55: Personal chemical exposure sensor with indoor positioning and robotics for laboratory safety. *K. Brown, A. Brandes, A.E. Norton, P.B. Shaw, D.T. Neu, R. Voorhees*
4:20: Hydrogen gas lab servers provide many advantages to laboratory operations. *J. Speranza*
4:45: Achieving a Balance Between Expansion and Cost Control – Yale University West Campus Research Operations. *C.D. Incarvito*

Regional Meeting Subcommittee Report

I want to propose an idea to you all about the Regional Meetings. We continue to have some difficulty in communications, but we could develop a plan for moving forward in the future.

I would like to have a CHAS representative who participates in each of the regions and could be active in contacting Regional Meeting Coordinators [working from the inside!]. It would be great if that person is on the EC or active in CHAS. I would be glad to coordinate that group and try to serve as a contact to the ACA regional organizers, but now we would have a person in each regional meeting that could make more effective communications with the meeting planners. These CHAS reps could approach the planners and get back to our whole CHAS rep group and the EC with requests. We would present developing requests and plans to the EC to find out about those who would like to participate or who the EC would recommend to participate in planning programming with the regional groups.

We would still need to be sensitive to the financial issues [such as requests for funding assistance that we have declined in the past and appropriately so, or making sure that funds are appropriate for presenters/workshop instructors] that we have faced, so communications coming from the CHAS reps need to be coordinated and other commitments to the regional planners would be available after EC approval.

As well, would you each submit your name or other names of individuals that are active in regions so I can compile a list of these reps and make contact with them each before the DC meeting.

Thank you.
-mark

Mark Lassiter
Division of Chemical Health and Safety
Regional Meetings Coordinator
Professor of Biology and Chemistry
Montreat College
mlassiter@montreat.edu

Proposal from Lee Latimer regarding regional meetings

Supporting our thrust in safety as a core value, I would like to propose to the division executive team that we commit to a safety session/symposium at each of the meetings by a proactive approach of going to the organizers and offering financial support (modest, $250-500) and organizing. A similar, though not as full coverage, is used by Small Chemical Business and administered through Joe Sabol.

I feel this effort will not only push the brand for CHAS, but also engage our members who are local to those regions. Regional meetings typically involve many ACS members from smaller companies and those who can't travel to national meetings for either time or financial reasons.

Long Range Planning Committee Report – F17, Washington, DC

ITEM 1: Progress on Issuance Updates Discussed F16, Philadelphia & S17, SF

i. Clarification of election process for subdivisions – **It was decided that none was needed**

ITEM 2: Progress on Issuance Updates Discussed S17, SF

i. AI 07 Records Retention – **In progress**
ii. AI 706 Added – The Heidolph North America (HNA) CANN Award – **Information needed**
iii. AI 804 CHAS Underwriting Opportunities – **Update complete (are further updates needed?)**

ITEM 3: Issuance Updates for Discussion or Approval – F17, Washington (Please read text in red to approve)

i. **At the S17 meeting the updates suggested by Dave Smorodin (the ACS Assistant General Counsel) were reviewed. Items have been incorporated into AI 07. Additionally, language defining "Record" was discussed. A definition (in red) based on discussion was added as bullet 4 in AI 07.**

AI 07 - Record Retention

DIVISION OF CHEMICAL HEALTH AND SAFETY Administrative Issuance 07

0 Records Retention

1 Function:
To preserve division records and history.

2 Date:

Original Issuance: 9/26/08
Revised: 8/21/16
Revised/Effective Date: DBT

3 Background

The records of the Division of Chemical Health and Safety ("CHAS") of the American Chemical Society ("ACS") are important assets. Records include essentially all records produced whether paper or electronic. A record may be as obvious as a memorandum, an e-mail, a contract or a case study, or something not as obvious, such as a computerized desk calendar, an appointment book or an expense record.

The law requires CHAS to maintain certain types of records, usually for a specified period of time. Failure to retain those records for those minimum periods could subject CHAS to penalties and fines, cause the loss of rights, obstruct justice, spoil potential evidence in a lawsuit, place CHAS in contempt of court, or seriously disadvantage CHAS in litigation.

The CHAS Record Retention Policy was developed to be consistent with the Society regulations, which state:

> *Disposition of Old Files*. The officers and heads of SOCIETY activities for which funds are budgeted by the SOCIETY are authorized and instructed to destroy from time to time, in their discretion, old and useless papers not of permanent value, in accordance with retention schedules approved by the Executive Director. Unless other requirements apply, or unless otherwise specified by the Board of Directors, the period of retention of files is seven (7) years.

4 Definition

Record: Correspondence, reports, memoranda, governing documents, contracts, patents, copyrights, employment documents, emails and other records whether in paper or electronic format. Only emails containing the final draft of a written document will be the email of record.

5 Responsibilities:

The Treasurer with cooperation of the Secretary and Committee Chairs organize and store the Divisions Records.

6 Suspension of Records Destruction Policy

Any records retention policy should take great care to forbid any behavior that could be construed as spoliation of evidence. Spoliation of evidence occurs when someone fails to preserve property for use by another as evidence in pending or future litigation. Spoliation is an extremely serious matter and can lead to court sanctions, civil liability, criminal charges and professional discipline.

a. This policy is intended to prevent spoliation or destruction of evidence. It may be necessary to suspend the records destruction policy set forth herein under the following circumstances:

(1) in the event of anticipated or pending civil or criminal litigation, or other legal action, or alternative dispute resolution proceeding such as arbitration or mediation;
(2) in the event of an anticipated or pending administrative action, government enforcement proceeding, investigation or audit;
(3) in the event of service of a summons or complaint, or receipt of a request for preservation of records; or

(4) in the event an officer learns of other circumstances in which the preservation of records may be required.

b. If an officer learns of any of the above circumstances, he or she should report them immediately to the ACS General Counsel, who may take appropriate action to suspend all destruction of potentially applicable records, including issuance of a litigation hold or preservation notice identifying which categories of records are to be labeled for retention until further notice.

7 Record Disposition:

RT	**-**	**Retained Until Termination, Cancellation or Completion (of contract, project, etc.)**
PR	**-**	**Permanently Retained**
RS	**-**	**Retained Until Superseded**
LOP	**-**	**Retained by Authority Until Record No Longer Serves a Legitimate Operational Propose**

Type of Record	Retention Period	Authority
CORPORATE GOVERNANCE RECORDS		
1. Articles of Incorporation, Bylaws,	RS	Treasurer
2. Administrative Manual	RS	Chair, LRP Committee
3. Federal and State Tax Exemption Certificates	PR	Treasurer
4. Federal and State Tax Exemption Certificates	PR	Treasurer
5. Executive Committee Meeting Agendas and Manuals	PR	Secretary
6. Working Papers and Miscellaneous Drafts/Transcripts for the Executive Committee	1 year	Secretary
7. Executive Committee Meeting Minutes	PR	Secretary
8. CHAS Annual Report Final Copy	5 years	Secretary
9. CHAS Annual Report (Secretary/Treasurer Portions)	5 years	Secretary/Treasurer
10. CHAS Committee Agendas & Minutes	5 years	Committee Head
CONTRACTS		
1. CHAS purchases of goods and services	RT + 4 years	Treasurer
2. CHAS sales of products and services	RT + 4 years	Treasurer
3. CHAS Workshop Records	4 years	Treasurer
4. Government Contracts	RT + 6 years	Treasurer
5. Other Contracts	RT + 4 years	Treasurer
INTELLECTUAL PROPERTY		
1. Copyright and Trademark Registrations	PR	Secretary
2. Registered Patents	PR	Secretary
3. Domain Name Registrations	PR	Secretary
MISCELLANEOUS		
1. General Correspondence	2 years or LOP	Originator

2. General Reading/Chronicle Files	2 years or LOP	Originator
3. Diaries/Calendar/Phone Logs/Meeting Notes/Minutes	1 year	Originator
4. Information Only/Memos/Forms not requiring follow-up	1 year	Originator
5. Working files/Project files	RT + LOP	Originator
6. Annual or Statistical Reports	5 years	Originator

PUBLICATIONS		
1. Copies of published journals (at least one archive copy)	PR	Editor, JCHAS
2. Copyright assignment forms	PR	Publisher

FINANCE ADMINISTRATION RECORDS		
1. Audits	No more than three on file	Treasurer
2. Bank Statements/Deposit Slips/Cancelled Checks	5 years	Treasurer
3. Bond Records	PR	Treasurer
4. Budgets (including worksheets and detail)	5 years	Treasurer
5. Fixed Asset/Capital Information	PR	Treasurer
6. Insurance Policies/Certificates of Insurance	RT + 4 years	Treasurer
7. Annual Financial Statements	PR	Treasurer/QUICKBOOKS
9. General Ledgers/Journals	PR	Treasurer/QUICKBOOKS
10. Income Tax Returns (correspondence and workpapers)	7 years	Treasurer
11. All Other (invoices, media, vouchers, account records)	5 years	Treasurer
12. Donor/Pledge/Sponsor Records	5 years	Treasurer
13. Investment Records	7 years	Treasurer
14. Expense Reports, Reimbursement Requests	5 years	Treasurer

LEGAL		
1. Litigation documents – In the event of litigation, a Defense committee will be established consisting of the elected officers and others as appropriate. All records of this group will be retained by the Treasurer.	RT + 4 years	Treasurer

MEMBERSHIP		
1. Monthly eRoster	RS	Membership Chair
2. Monthly JCHAS subscriptions	RS	JCHAS Editor

8 Storage

The respective officers, and committee chairs are responsible for keeping their reports and materials current and secure. Twice a year following each national meeting, officers and chairs should forward any revised material to the Treasurer for filing. The records should be stored electronically both on site and remotely as determined by the Treasurer. The document name shall have a title and include the date.

9. Document Naming

The document shall have a name and date in its title and file name. The following are examples of such file names

CHAS_990EZ_2015
Executive Committee Minutes Fall 2016
Executive Committee Agenda Fall 2016
ADMIN 2016 August
Presentations Fall 2016

iii. Update of AI 105 – Regulatory and Public Affairs Committee Requested

AI 105 was updated based on discussion. Text in red needs approval.

DIVISION OF CHEMICAL HEALTH AND SAFETY Administrative Issuance 105
0 Regulatory and Public Affairs Committee

1 Function:

The Regulatory and Public Affairs Committee will monitor regulatory issues and social awareness of chemical safety issues and prepare materials that can be used by ACS, Committee on Chemical Safety, and Division officers and division officers to comment on or respond to questions about these concerns.

2 Date:

Original Issuance:

Revision: 04/1993
Revision: 08/2015
Revision/Effective Date: TBD

3 Tasks:

TASKS	TIME FRAME
The committee should, keep abreast of regulatory activities of interest to the Division. If necessary, the committee will work with any ACS committee and the Office of Public Affairs to formulate public comment.	
CHAS input in comments shall be approved by the elected CHAS Executive Committee. Public comments which have been approved by the CHAS EC shall be submitted to the soliciting agency by an official representative of the Society. See Bylaw II, Section 3(e). Additional Guidance can be found in ACS BYLAWS ARTICLE XIII Divisions (ACS GOVERNING DOCUMENTS Bulletin 5: Sec. 3.	This is a continuous activity.
A written report detailing the committee's activities and regulatory developments relevant to the Division shall be submitted to the Division Secretary.	This should be done before each national ACS meeting.

4 Term of Chair:

One year, renewable to three years, as appointed by Chair CHAS

iv. Question: Which AIs need detailed guidance or their own "manual" for continuity? It has been suggested that the Awards committee would fall in this category.

NAS Graduate Education Call for Input

Thank you for your interest in the National Academies of Sciences, Engineering, and Medicine's Committee on Revitalizing Graduate STEM Education for the 21st Century. **The Committee invites your response to the recently released Discussion Document and Call for Community Input**.

The Discussion Document outlines sets of competencies that may serve as core educational elements at both the master's and Ph.D. levels**.** The Call for Community Input welcomes general reactions to the competencies and also provides questions for more specific feedback. **The Discussion Document and Call for Community Input will remain open for comment until September 22, 2017.**

If you are interested in attending the Committee's next meeting on September 14 from 1:30-5:00pm PST at the University of California, San Francisco, please use this link for in-person attendance or this link for information on the webcast. Please direct any questions about the Discussion Document, Call for Community Input, or September meeting to the study director, Layne Scherer (lscherer@nas.edu).

Please direct any questions about the Discussion Document, Call for Community Input, and September meeting to me at Lscherer@nas.edu.

Many thanks,

Layne Scherer
Study Director, Committee on Revitalizing Graduate STEM Education for the 21st Century
Program Officer, Board on Higher Education and Workforce
The National Academies of Sciences, Engineering, and Medicine
Office: (202) 334-2833
Mobile: (248) 207-5862
lscherer@nas.edu
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The National Academies of SCIENCES ENGINEERING MEDICINE

BOARD ON HIGHER EDUCATION AND WORKFORCE
Policy and Global Affairs

National Academies of Sciences, Engineering and Medicine
Committee on Revitalizing Graduate STEM Education for the 21st Century

Discussion Document and Call for Community Input

Provide Input

The members of the National Academies of Sciences, Engineering, and Medicine's (National Academies) Committee on Revitalizing Graduate STEM Education for the 21st Century are soliciting input into ways to structure U.S. graduate education programs to better serve the needs of diverse students, the scientific enterprise, and the Nation.[1] We would appreciate your reactions to some of the input the Committee has received from various stakeholders (e.g. students, faculty, scientific societies, funding agencies), as well as your own thoughts on these issues.

BACKGROUND

The National Academies created this Committee to respond to the concern that the current system is inadequately educating graduate students in science, technology, engineering and mathematics (STEM) to prepare them for productive careers in the 21st century. For example, all available evidence suggests that over 60 percent of new Ph.D. students in STEM do not pursue careers in academia.[2] However, the Ph.D. graduate education system has changed relatively little over the past 100 years, with its fundamental format directed at preparing students primarily for research careers in academia. At the master's level, there have been more significant changes over the last decade or two, but there is concern those changes may have been too few or too small in scale. Given the diversity of career paths students pursue—coupled with changes in demographics of the student populations, and with the rapid evolution in the ways science itself is conducted—we and others believe there is an urgent need to ensure that the graduate education system is better aligned with the needs of all students, as well as the needs of the scientific enterprise, potential employers, and the broader society. The National Academies charged this Committee with considering the questions of how well the current graduate education system is equipping students for current and anticipated future needs and what changes should be made to increase its effectiveness.

The Committee recognizes that many elements of the existing graduate education system are working well and serve many of the needs of an array of higher education institutions, academic departments, faculty members, and other stakeholders. The Committee will strive to ensure those benefits are not compromised. Nevertheless, evidence from students, recent graduates, and employers suggest that the system has not fully kept pace with broader changes in society, or in the ways science and engineering are practiced.[3] There is both a demand and opportunities to modernize the system to be more inclusive and to better meet the needs and interests of an increasingly diverse student body pursuing a broad spectrum of careers in a world in which labor markets, funding sources, and institutional policies are undergoing rapid change.[4]

A CALL FOR COMMUNITY INPUT

As a starting point for your thoughts, we ask you to consider a set of competencies, described in the following sections, that might serve as core educational elements or goals at both the master's and Ph.D. levels. These core educational elements would be the foundation for framing programmatic and logistic standards and considerations, such as program structure, curriculum, and how to enhance diversity within the scientific enterprise. We would like to know if the community, writ large, agrees with these core educational goals going forward or whether they should be adjusted to better reflect the context and needs of all 21st century STEM graduate students. We would value your ideas on what might be missing from these lists, and what additional knowledge, experiences, and skills should be expected of all students. We also ask for your input on other questions we are pondering, listed at the end of the document, that represent focus areas for the eventual development of our report and recommendations.

CORE EDUCATIONAL ELEMENTS: MASTER'S DEGREES

Many master's programs are characterized by flexibility and adaptability to the changing nature of scientific disciplines and to workforce demands, and they often attempt to integrate the physical, biological and social sciences, and even the humanities and arts. With a shorter time-to-degree than the Ph.D., and because many students fund their own master's degree program, institutions often establish and adapt master's programs to respond to workforce demands (sometimes in partnership with industry), and to anticipate emerging interdisciplinary fields.

To find a vision for core educational elements of master's degrees, the Committee referred to the Council of Graduate School's (CGS) Alignment Framework for the Master's Degree. This alignment framework was the product of a year-long dialogue that included 150 graduate school deans.[5] Of the three defining characteristics of master's degree programs, the section on competencies describes four developmental dimensions that graduate school deans believe should be common among all or most master's degree programs:

1. Disciplinary and interdisciplinary knowledge: Master's students should develop core disciplinary knowledge and the ability to work between disciplines.
2. Professional competencies: Master's students should develop abilities defined by a given profession (e.g. licensing, other credentials).
3. Foundational and transferrable skills: Master's students should develop skills that transcend disciplines and are applicable in any context, such as communications, leadership, and working in teams. These dimensions are especially critical as the lines that traditionally define scientific and engineering disciplines become blurred—and more scientific research and application is characterized by the convergence of disciplines.
4. Research: Master's students should develop the ability to apply the scientific method, understand the application of statistical analysis, gain experience in conducting research and other field studies, and engage in work-based learning and research in a systematic manner.

CORE EDUCATIONAL ELEMENTS: PH.D.

There is a consensus among graduate education leaders and faculty on U.S. university campuses that the education Ph.D. students receive should at a minimum provide them the ability to conduct original scientific research and to enhance their capacity to acquire new data, information, and knowledge. That is, the core coursework and other intensive experiences in the classroom and laboratory should prepare students to discover new knowledge, understand the implications of the new knowledge for both the scientific discipline and society at large, and communicate the impact of the research to their peers and the broader public. Taken together, the core educational elements would establish the STEM PhD educational mission: stimulate curiosity; develop intellectual capacity to recognize, formulate and communicate a complex problem; create multi-dimensional, quantitative approaches toward its solution; discover knowledge that advances understanding; and communicate the impact of the research to peers and the broader public.

Based on the input and ideas received to date, the Committee is considering some core elements of a quality Ph.D. education:

1. **Scientific Literacy, Communication, and Professional Skills**

    a. Acquire basic trans-disciplinary knowledge sufficient to address a complex problem using multiple conceptual and methodological approaches.
    b. Develop deep specialized expertise in at least one STEM discipline/approach.
    c. Acquire an appreciation of the ethics and norms of the scientific enterprise and its relationship to the rest of society, as well as a strong and ethical character and exemplary professional conduct.
    d. Develop the ability to work in collaborative and team settings involving colleagues from diverse cultural and disciplinary backgrounds.
    e. Develop management, leadership, financial, and entrepreneurial skills critical to success in any 21st century career.
    f. Build capacity to communicate the significance and impact of a study or a body of work to all STEM professionals, policymakers, and the public at large.

2. **Conduct of Original Research**

a. Identify an important problem and articulate an original research question.
b. Design a set of studies, including relevant quantitative and analytic approaches, to explore components of the problem and begin to address the research question.
c. Evaluate outcomes of each experiment or study component and select which outcomes to pursue and how.
d. Adopt rigorous standards of investigation and acquire mastery of the quantitative and analytic skills required to conduct successful research in the field of study.

Are these effective/appropriate core educational elements for the 21st century, or should they be modified to increase the probability of successful careers for all students? The Committee looks forward to your comments and suggestions.

ADDITIONAL QUESTIONS FOR THE COMMUNITY

The Committee also seeks your input on several issues that have arisen during our deliberations to date.

- In addition to the core capabilities described above, the Committee has been hearing about other offerings that could augment a graduate STEM degree independently of the student's educational and career goals. These might include mentoring, career exploration, personnel management, cross-cultural competency, budgeting, communication, entrepreneurship, and fundamentals of business development. This raises an array of questions on which the Committee seeks input:
  - What are the types of offerings that institutions, employers, professional societies, and other stakeholders should provide to help students acquire the skills to equip them for 21st century careers? To what degree will students and employers find value in emerging credentials offered online and by non-traditional models?
  - Should these offerings be required of all students, or should they be optional? When should they be offered? During or after graduate school?
  - How in-depth and of what duration should the additional educational experiences be?
- Many say that attitudinal and behavioral changes regarding career pathways for STEM graduates among virtually all concerned stakeholders (e.g. students, faculty, institutional leadership, funding agencies, etc.) are necessary to ensure that graduate STEM education is effective and relevant going forward. Given that each group operates within a different context and with its own unique set of incentives and rewards, how might those incentives be adjusted to better align the behavior of various groups to achieving the goals of 21st century graduate education?
- How can the system most effectively increase the diversity of U.S. STEM graduate student and faculty populations?
- How can the system increase completion rates for all students?
- There appears to be great concern about the issue of time-to-degree. What level of priority should time-to-degree receive, and how should it be addressed?
- Since the needs for graduate STEM education will continue to evolve and change over time, what kind of monitoring system can be established to ensure continuous improvement in terms of meeting the needs of diverse stakeholders? What metrics would be used to evaluate progress?
- How might students gain sufficient familiarity with the range of careers available for STEM Ph.D. recipients so that they can make more informed decisions as their education progresses? Should the core of graduate education be in some way adjusted to align better with the perceived needs of the range of future employers? Would internships in non-academic settings or opportunities to formally mentor other students be appropriate? If so, should those internships and mentoring opportunities be offered during or after graduate school?
- The systematic collection and publication of reliable career placement data are sporadic across graduate schools and individual departments, although the Committee is aware that efforts are underway to remedy this situation. How can we best encourage uniform transparency about career outcomes for prospective students and other stakeholders at the level of individual graduate schools and departments? What would be the impact of publication of these data on prospective students and graduate schools?

You may submit your feedback online at http://nas.edu/GradEdInput by September 22, 2017
or you may submit general comments via e-mail to STEMGradEd@nas.edu.

View PDF version of Discussion Document and Call for Community Input

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[1] Visit the project website for Statement of Task, list of Committee members, and project information.

[2] National Science Foundation, National Center for Science and Engineering Statistics. 2016. Doctorate Recipients from U.S. Universities: 2015. Special Report NSF 17-306. Arlington, VA. Available at www.nsf.gov/statistics/2017/nsf17306/. Table 46.

[3] National Academies of Sciences, Engineering, and Medicine. 2016. Developing a National STEM Workforce Strategy: A Workshop Summary. Washington, DC: The National Academies Press. doi: 10.17226/21900.

[4] National Science Foundation. 2016. The National Science Foundation Strategic Framework for Investments in Graduate Education FY 2016-FY 2020. NSF-16074. Arlington, VA. Available at www.nsf.gov/pubs/2016/nsf16074/nsf16074.pdf.

[5] Council of Graduate Schools. 2016. The Alignment Framework for the Master's Degree. Washington, DC. Available at http://cgsnet.org/january-2017-gradedge.

The National Academies of Sciences, Engineering, and Medicine
500 Fifth Street, NW | Washington, DC 20001 | T. 202.334.2000

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Committee on Revitalizing Graduate STEM Education for the 21st Century
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agencies, etc.) are necessary to ensure that graduate STEM education is effective and relevant going forward. Given that each group operates within a different context and with its own unique set of incentives and rewards, how might those incentives be adjusted to better align the behavior of various groups to achieving the goals of 21st century graduate education?

- How can the system most effectively increase the diversity of U.S. STEM graduate student and faculty populations?
- How can the system increase completion rates for all students?
- There appears to be great concern about the issue of time-to-degree. What level of priority should time-to-degree receive, and how should it be addressed?
- Since the needs for graduate STEM education will continue to evolve and change over time, what kind of monitoring system can be established to ensure continuous improvement in terms of meeting the needs of diverse stakeholders? What metrics would be used to evaluate progress?
- How might students gain sufficient familiarity with the range of careers available for STEM Ph.D. recipients so that they can make more informed decisions as their education progresses? Should the core of graduate education be in some way adjusted to align better with the perceived needs of the range of future employers? Would internships in non-academic settings or opportunities to formally mentor other students be appropriate? If so, should those internships and mentoring opportunities be offered during or after graduate school?
- The systematic collection and publication of reliable career placement data are sporadic across graduate schools and individual departments, although the Committee is aware that efforts are underway to remedy this situation. How can we best encourage uniform transparency about career outcomes for prospective students and other stakeholders at the level of individual graduate schools and departments? What would be the impact of publication of these data on prospective students and graduate schools?

You may submit your feedback online at http://nas.edu/GradEdInput by September 22, 2017,
or you may submit general comments via e-mail to STEMGradEd@nas.edu.

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[1] Visit the project website for Statement of Task, list of Committee members, and project information.
[2] National Science Foundation, National Center for Science and Engineering Statistics. 2016. *Doctorate Recipients from U.S. Universities: 2015*. Special Report NSF 17-306. Arlington, VA. Available at www.nsf.gov/statistics/2017/nsf17306/. Table 46.
[3] National Academies of Sciences, Engineering, and Medicine. 2016. *Developing a National STEM Workforce Strategy: A Workshop Summary.* Washington, DC: The National Academies Press. doi: 10.17226/21900.
[4] National Science Foundation. 2016. *The National Science Foundation Strategic Framework for Investments in Graduate Education FY 2016-FY 2020*. NSF-16074. Arlington, VA. Available at www.nsf.gov/pubs/2016/nsf16074/nsf16074.pdf.
[5] Council of Graduate Schools. 2016. The Alignment Framework for the Master's Degree. Washington, DC. Available at http://cgsnet.org/january-2017-gradedge.

Report of Activities of the Government Relations Committee:

August 2017

Submitted by Ellen Sweet

This committee continues to track OSHA and EPA regulatory announcements and agendas for items that the Division can provide useful input on.

Please bring to my attention any announcements you see for my consideration.

Chemical Safety Policy Statement Writing Group

Attached is the final version of *Safety Guidelines for the Chemistry Professional – Understanding Your Role and Responsibilities* which has been prepared by the CCS-CHAS Policy Statement Writing Team. Comments by CCS and CHAS EC members have been reviewed and incorporated into this final version. The approval of this document by both CCS and CHAS indicates that *Safety Guidelines* is offered to the ACS Membership and other interested parties on behalf of the community of safety professionals within ACS.

I wish to thank the other members of the Policy Statement Writing Team: Debbie Decker, Harry Elston, Bettyann Howson, Ralph Stuart, Ellen Sweet, Erik Talley, and Frankie Wood-Black. Also, I would like to acknowledge the significant contribution of Ray Garant from the ACS Staff for his skill in helping us focus on the intended audience for this document and for the earlier public policy statement. This team began its work in December 2015 and concluded in May 2017 with our consideration of comments and suggestions. I thank all of the members for their dedication and their individual contributions to this process.

Ken Fivizzani – Chair

CCS–CHAS Policy Statement Writing Team

Safety Guidelines for the Chemistry Professional:
Understanding Your Role and Responsibilities – 05/16/17

Over the past decade, there has been steadily increasing professional and public concern about the effectiveness of chemical safety programs. Specific incidents in academic, industrial, and public settings have led to the need for a clear statement of the responsibilities of chemistry professionals regarding Environmental Health and Safety (EH&S) issues. Meeting this need is not a simple task for two reasons:

- No chemistry professional works in isolation and an effective chemical safety program is a partnership between individual professionals and the organizations for which they work; and
- Chemistry professionals often serve many roles. These roles can include teaching, conducting research, supervising specific laboratories, and managing large organizations, often in the same job. The emphasis among the responsibilities listed below may vary among these roles, but these responsibilities apply to all of these roles.

For this reason, this document, jointly authored by the American Chemical Society's (ACS) Committee on Chemical Safety and the Division of Chemical Health and Safety, outlines prudent expectations for the chemical safety roles and responsibilities for both chemistry professionals and their organizations. Additionally, this guideline identifies ACS resources which support these expectations.

Responsibilities of chemistry professionals include:

1. The chemistry professional has an **ethical**[1] and **legal**[2] responsibility to work with chemicals safely. This means that chemistry professionals must protect themselves, their colleagues and co-workers, their communities, and the wider environment from the risks associated with the hazards of chemicals. Chemistry professionals must also help identify and address emerging safety and health hazards when contributing to the scientific literature.
2. Chemistry professionals need to develop competency in **identifying and understanding chemical hazards, assessing and evaluating the risks of specific chemical uses, and managing those risks**. Throughout this process, chemistry professionals need to work with other stakeholders, including administrators with oversight and/or facility responsibilities, when planning for particularly hazardous activities and for potential emergencies
3. Chemistry professionals must actively participate in their organizational culture concerning the safe practice of chemistry. Chemistry professionals need to understand and observe **policies and procedures** at their institutions. As science professionals, they must contribute to the continuous improvement of their organization's safety programs.
4. Safety skills need to be included as part of the formal **education** of chemistry professionals. Safety is an essential component of how chemistry professionals work. Students need to learn how to incorporate both technical and cultural safety considerations in their work. As

[1] ACS Chemical Professional's Code of Conduct
[2] While a variety of regulatory agencies can impact chemical work, OSHA, EPA and DOT requirements should be the first consulted to determine specific impacts.
[3] See *Safe Science: Promoting a Culture of Safety in Academic Chemical Research* (2014) from the National Academy of Sciences for an outline of the cultural information appropriate for this work.

part of this education, chemistry professionals need training in the use of **safety information**, including electronic resources, technical data, the broader safety literature, and literature on organizational culture.[3]

5. Chemistry professionals assume a crucial role in providing accurate chemical safety information to impacted parties in their communities. This role includes **supporting employer and professional organization communication** with the general public concerning health and safety issues.

Responsibilities of organizations that employ chemistry professionals include:

1. There is an essential connection between scientific excellence and excellence in safety; this connection must be recognized and encouraged. Safety attitude and activities must be important parts of **performance evaluation and career development**. Safety leadership activities such as service on safety committees, mentoring others in safety, or work in safety-oriented positions should be recognized and rewarded.
2. Organizations employing chemists should expect managers, faculty/Principal Investigators, and chemistry professionals to **understand their safety responsibilities**. All employees must be empowered to maintain a safe work environment.
3. Improving safety is a dynamic process and organizations need to provide **appropriate resources and support** for safety programs as the science they use evolves, with particular attention during times of rapid change in science and laboratory practice.
4. Organizations need to set **clear expectations that new chemistry professionals** be knowledgeable in and committed to safe practices. Organizations also need to provide specific training which supports these expectations. In academia, information on policies and procedures needs to be effectively communicated to teaching and research professionals, support staff, and students. Buy-in and demonstrated personal responsibility need to be supported by a proactive safety culture.[4]
5. Good safety programs include a commitment to **protect the environment**. Responsible stewardship of chemicals requires that organizations provide effective emergency response capabilities, consistent promotion of responsible recycling, waste minimization and disposal, and consideration of concepts such as sustainability and inherent safety. Security of chemicals must be appropriately maintained. Intentional or uncontrolled release of hazardous material is unacceptable anywhere in the chemistry enterprise.

In research communities, ongoing attention to **all aspects of chemical health and safety** should be prioritized. The ACS models this leadership role by producing state-of-the-art technical support materials (see Appendix).

ACS safety professionals recognize that any technological change incurs some level of risk. By managing this risk based on **continuous improvement of safety performance**, chemistry professionals and their organizations can meet their obligations to support the ACS commitment to ***"improving people's lives through the transforming power of chemistry."***

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[4] See *A Guide to Implementing a Safety Culture in Our Universities* from the APLU Council on Research Task Force on Laboratory Safety for specific organizational tools to support such a safety culture.

Appendix: ACS Chemical Safety Resources

Technical Resources

1. **Committee on Chemical Safety:** CCS is a Committee of the Society that provides technical and educational leadership within the Society with regard to safety issues. The Committee produces peer reviewed documents which provide guidance with regard to technical and management issues related to chemical safety in the laboratory, particularly in the educational setting. These can be found at **http://www.acs.org/safety**
2. **Division of Chemical Health and Safety:** CHAS is a Technical Division of the Society that pursues research into all elements of chemical and laboratory safety, including technical and management aspects. The Division hosts technical symposia at national and regional meetings, publishes a bi-monthly peer-reviewed journal (*Journal of Chemical Health and Safety*), and hosts educational workshops at national and regional meetings. **http://www.dchas.org**
3. **C&EN Safety Zone Blog:** The C&EN blog site includes the *Safety Zone* which provides ongoing updates on chemical and laboratory safety events and trends to the ACS membership and general public.
4. **Technical Programming:** Many ACS technical divisions include symposia specific to safety issues in their specialties in their international, national, and regional meeting programs.
5. **ACS publications:** ACS publications require technical papers they publish to identify hazards and risk management strategies associated with the work they describe, either through direct discussion of these issues or through citation of appropriate safety literature applicable to this work.

Educational Resources

1. **Division of Chemical Education Safety Committee**: is a new Committee of the Division of Chemical Education established in 2015. The CHED safety committee is reviewing safety guidance documents published by the division and plans outreach to members around safety issues. **http://www.divched.org/committee/safety**
2. **Committee on Professional Training:** The CPT provides guidance about how to including expectations address laboratory safety education in the undergraduate curriculum. http://www.acs.org/cpt
3. **American Association of Chemistry Teachers:** The AACT provides safety programming as part of its outreach to high school chemistry teachers. https://teachchemistry.org
4. **Society Committee on Education:** SOCED provides *"Guidelines and Recommendations for the Teaching of High School Chemistry."*

Environmental Resources

1. **Committee on Environmental Improvement:** The CEI supports environmental stewardship of the chemical enterprise and its products. https://www.acs.org/content/acs/en/about/governance/committees/cei.html
2. **Green Chemistry Institute:** The ACS GCI advocates for research and development of Green Chemistry practices in both research and industrial settings. https://www.acs.org/content/acs/en/greenchemistry.html