MEETING MINUTES

Sustainable Lab Practices Working Group
NIH Environmental Management System (NEMS)
Wednesday, April 16, 2008
1:30 – 2:30 pm

Meeting Objective(s):

- Provide update on the status of the NEMS
- Determine awareness options for all or selected priority chemicals
- Provide summary of GSA training on greening of scientific equipment through green purchasing
- Confirm status of 2007 objectives and identify new objectives

Attendees:

Robin Hirschhorn (Booz Allen)
Charlyn Lee (ORF)
David Mohammadi (ORF)
Kristen Peters (Booz Allen)
John Prom (ORF)
Wendy Rubin (ORS)
Linda Thompson (Booz Allen)
Don Wilson (ORF)

Minutes:

NEMS Update

Kristen Peters provided information on the upcoming Green Hour event. The Green Hour is a speakers series that investigates environmental topics of interest to the NIH community. The next event, scheduled for May 14 at noon in Building 45 (Natcher), Balcony C, will explore environmental impacts on children's health and development. Michael Dellarco of NICHD will present information on the National Children's Study, which examines the effects of environmental influences on the health and development of more than 100,000 children across the United States, following them from before birth until age 21. For more information on the Green Hour, visit http://www.nems.nih.gov/greenhour/.

Ms. Peters also informed the working group of the Earth Day celebration scheduled for April 24 from 10 a.m. to 2 p.m. on the lawn of Building 1. There will be activities, giveaways, food, and entertainment. Since this date is also Take Your Child to Work Day, there are many activities for children including pizza box solar oven and Frisbee contests. There are also many activities for adults including a demonstration on green roofs and a drive-up check of tire air pressure and tread wear. For a complete listing of the Earth Day activities, visit http://www.nems.nih.gov/earthday/.

Identification of Chemicals for Priority Reduction

Charlyn Lee, John Prom, and Don Wilson provided an update on the status of targeting and prioritizing specific NIH laboratory chemical waste streams for reduction efforts. They provided a list of NIH Target Chemicals consisting of approximately 170 chemicals currently used in NIH laboratories and research centers (Attachment 1). The group used a set of risk-based criteria to rank the chemicals (see Attachment 2), including (1) quantity of waste generation (15 points); (2) direct risk to human health and safety during research, facility support, and on-site waste management activities: generation, handling, storage, transportation, recycling, treatment, and disposal (55 points); (3) waste subject to specific reduction mandates in statutes, regulations, executive orders, and agency plans (15 points); and (4) availability and feasibility of reduction methods (15 points). All of the chemicals have been rated in the first three categories, but some of the chemicals still need to be evaluated in the last category. For this effort, the group requested distributing the list to the Lab Managers Working Group for input or developing a small working group of volunteers. Once complete, the list could be ranked and a top 10 list of chemicals created.

Robin Hirschhorn suggested that some research on reduction feasibility be conducted by Booz Allen first, and then a few chemicals chosen to focus on reduction efforts. The Mad Hatter campaign has been so successful because it focused on one chemical.

Linda Thompson asked why chemicals that have reduction methods available and achievable without causing excessive impacts on scientific productivity and other mission activities received 15 points under the last category. (The first three categories receive high numbers for having a negative impact, not a positive one.) Mr. Wilson explained that receiving a high number will place the chemical higher on the list, giving greater focus and awareness to a chemical that could be reduced.

Summary of GSA Purchasing Training – Greening of Scientific Equipment

Mr. Wilson provided a summary of the Green Procurement Training hosted by CDC on April 11 and specifically the track on Green Purchasing of Scientific Equipment and Services (see Attachment 3). He described that it was mostly training from GSA and representatives from Staples, which is the HHS strategic purchasing source. Mr. Wilson described that there was not much covered on scientific equipment, but that Ed Pfister had provided some slides that might provide more information. He is working on setting up a similar outreach event at NIH, and also suggested inviting the Staples representative to the Sustainable Office Practices Working Group.

Review of the 2007 Objectives and Identification of New Objectives

The status of the 2007 lab-related NEMS objectives were reviewed and discussed (Attachment 4). Changes noted during the meeting are provided in the attachment in red font.

Action Items:

Action Item	Responsible Person(s)	Due Date
1. Finalize the NIH Target Chemicals Ranking List	Charlyn Lee, John Prom, Don Wilson	Wednesday, May 21
2. Research replacements of NIH Target Chemicals	Linda Thompson	Wednesday, May 21
3. Contact the Lab Managers Working Group to establish a focus group to evaluate availability and feasibility of reduction methods for NIH Target Chemicals	Kristen Peters	Wednesday, May 21
4. Send updates on 2007 NEMS Objectives to Kristen Peters (peters_kristen@bah.com)	Group	Wednesday, May 21

Next Meeting:

The next meeting is scheduled for Wednesday, May 21 from 1:30 to 2:30 PM. An agenda will be distributed on the discussion items are finalized.

MEETING MINUTES

Sustainable Lab Practices Working Group
NIH Environmental Management System (NEMS)
Wednesday, April 16, 2008

ATTACHMENT 1

NIH TARGET CHEMICALS RANKING

CASN	Chemical Name	Waste Code	Quantity Generated CY07 (Kg) (15pts)		Health and Safety Risk on Waste Management N F P A 704 (55pts)					Mandated Regulatory Reduction (15 pts)						Reduction Feasibility Methods (15pts)	Total Points
			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
75-05-8	Acetonitrile	U003,D001	3532.7	15	2	3	0	10	26	3		3	3		9		50
67-66-3	Chloroform	U044,D022	986.5	15	2	0	0	20	38	3		3	3		9		62
75-09-2	Dichloromethane	U080	1095.5	15	2	1	0	15	31	3		3	3		9		55
68-12-2	N,N-Dimethylformamide	D001	632.5	10	3	2	0	10	26	3		3	3		9		45
872-50-4	N,-Methyl-2-pyrrolidone		269.6	10	2	2	0	10	24			3	3		6		40
110-54-3	n-Hexane	D001	873.2	10	1	3	0	10	24	3		3	3		9		43
7439-92-1	Lead	D008	993	10	3	0	0	20	40	3		3	3	3	12		62
	Lead Compounds																
546-67-8	Lead Tetraacetate	D008	0.7	1	3	0	0	20	40	3		3	3	3	12		53
301-04-2	Lead Acetate	U144,D008	1.5	1	3	1	0	20	41	3		3	3	3	12		54
14720-63-	Lead Borate	D008	0.5	1	3	0	0	20	40	3		3	3	3	12		53
598-63-0	Lead Carbonate	D008	0.5	1	3	0	0	20	40	3		3	3	3	12		53
512-26-5	Lead Citrate	D008	0.7	1	2	0	0	20	38	3		3	3	3	12		51
1335-32-6	Lead Subacetate	U146,D008	0.5	1	3	1	0	20	41	3		3	3	3	12		54
1309-60-0	Lead Dioxide	D008,D001	1.1	1	2	0	0	20	38	3		3	3	3	12		51
10099-74-	Lead Nitrate	D001,D008	0.1	1	1	0	0	20	36	3		3	3	3	12		49
1317-36-8	Lead Oxide, yellow	D008,D001	0.5	1	3	0	0	20	40	3		3	3	3	12		53
1314-41-6	Lead Oxide, Red	D001,D008	2.5	1	3	1	1	20	43	3		3	3	3	12		56
592-87-0	Lead Thiocyanate	D008	0.3	1	1	1	1	20	40	3		3	3	3	12		53
7758-95-4	Lead Chloride	D008	0.5	1	3	0	0	20	40	3		3	3	3	12		53
67-56-1	Methanol	U154,D001	5656.3	15	1	3	0	15	33	3		3	3		9		57
1239-45-8	Ethidium Bromide		201.1	10	3	1	0	20	41						0	15	66
75-21-8	Ethylene Oxide	U115,	42.9	5	3	4	3	10	34	3		3	3		9		48
7664-39-3	Hydrogen Fluoride	U134	4.7	1	3	0	2	20	43			3			3		47
10035-10-	Hydrogen Bromide		0	1	3	0	0	20	40						0		41
108-95-2	Phenol	U188	518.1	10	3	2	0	15	34	3		3	3		9		53
127-18-4	Tetrachloroethylene	U210,D039	0.37	1	3	0	0	5	14	3		3	3		9		24
108-38-3	m-Xylene	U239,D001	2548.6	15	2	3	0	10	26	3		3	3		9		50
1330-20-7	Xylene (mixed isomers)	U239	85.9	5	2	3	0	10	26	3		3	3		9		40
88-89-1	Picric Acid	D001	7	1	2	4	4	20	52	3		3			6	15	74
7440-47-3	Chromium	D007	0.03	1	2	1	0	10	22	3		3	3		9	15	47
	Chromium Compounds																
10025-73-	Chromium chloride	D007	1.1	1	1	0	0	10	19	3		3	3		9	15	44

NIH TARGET CHEMICALS RANKING

CASN	Chemical Name	Waste Code	Quantity Generated CY07 (Kg) (15pts)		Health and Safety Risk on Waste Management N F P A 704 (55pts)					Mandated Regulatory Reduction (15 pts)						Reduction Feasibility Methods (15pts)	Total Points
			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
7738-94-5	Chromic acid	D007,D001	8.4	1	3	0	1	15	33	3		3	3		9	15	58
13007-92-	Chromium Hexacarbonyl	D007	0.05	1	0	0	0	10	17	3		3	3		9	15	42
14977-61-	Chromium oxychloride	D007,D001	0.5	1	3	0	1	10	24	3		3	3		9	15	49
10141-00-	Chromium potassium sulfate	D007	1.6	1	1	0	0	10	19	3		3	3		9	15	44
7789-00-6	Potassium Chromate	D007,D001	0.02	1	3	0	1	10	24	3		3	3		9	15	49
778-50-9	Potassium Dichromate	D007,D001	6.7	1	3	1	1	10	26	3		3	3		9	15	51
20039-37-	Pyridinium Dichromate	D007,D001	0.3	1	2	0	1	10	22	3		3	3		9	15	47
11/3/7775	Sodium Chromate	D007,D001	0.5	1	3	0	0	10	22	3		3	3		9	15	47
10588-01-	Sodium Dichromate	D007,D001	6.8	1	4	0	1	10	26	3		3	3		9	15	51
7439-97-6	Mercury	D009	216.5	10	3	0	0	20	40	3		3	3	3	12	15	77
	Mercury Compounds																
1600-27-7	Mercuric acetate	D009	2.9	1	2	0	0	20	38	3		3	3	3	12	15	66
7789-47-1	Mercuric Bromide	D009	0.1	1	3	0	0	20	40	3		3	3	3	12	15	68
7487-94-7	Mercuric Chloride	D009	3.5	1	3	0	0	20	40	3		3	3	3	12	15	68
7783-39-3	Mercury fluoride	D009	0.1	1	3	0	0	20	40	3		3	3	3	12	15	68
7774-29-0	Mercury iodide	D009	0.5	1	3	0	0	20	40	3		3	3	3	12	15	68
15829-53-	Mercury Oxide	D009	0.02	1	3	0	0	20	40	3		3	3	3	12	15	68
21908-53-	Mercuric Oxide	D009	0.2	1	3	0	0	20	40	3		3	3	3	12	15	68
55-68-5	Mercury phenyl nitrate	D009	0.1	1	3	0	0	20	40	3		3	3	3	12	15	68
10112-91-	Mercurous Chloride	D009	0.01	1	3	0	0	20	40	3		3	3	3	12	15	68
13444-75-	Mercurous chromate	D009	0.1	1	3	0	0	20	40	3		3	3	3	12	15	68
592-04-1	Mercuric Cyanide	D009	0.8	1	3	0	0	20	40	3		3	3	3	12	15	68
10045-94-0	Mercuric Nitrate	D009	0.01	1	3	0	1	20	41	3		3	3	3	12	15	69
7783-35-9	Mercuric sulfate	D009	0.5	1	3	0	1	20	41	3		3	3	3	12	15	69
1344-48-5	Mercuric Sulfide (Red)	D009	0.02	1	4	0	0	20	41	3		3	3	3	12	15	69
592-85-8	Mercuric Thiocyanate	D009	0.02	1	3	0	0	20	40	3		3	3	3	12	15	68
62-38-4	Phenylmercuric acetate	P092	0.9	1	3	1	0	20	41	3		3	3	3	12	15	69
100-56-1	Phenylmercuric chloride	D009	0.3	1	3	1	0	20	41	3		3	3	3	12	15	69
138-85-2	p-hydroxymercuri-benzoate	D009	0.02	1	2	0	0	20	38	3		3	3	3	12	15	66
7783-33-7	Potassium mercuric iodide	D009	0.5	1	3	0	0	20	40	3		3	3	3	12	15	68
54-64-8	Thimerosal	D009	0.4	1	3	1	1	20	43	3		3	3	3	12	15	71

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			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
1746-01-6	Dioxins/Furans and Dioxin Compounds	D001	0.0002	1	3	3	2	20	48	3		3		3	9	15	73
1912-24-9	Atrazine		0.36	1	3	0	1	5	16			3	3		6		23
56-55-3	Benz(a) Anthracene	U018	0.03	1	2	1	0	10	22	3			3		6		29
50-32-8	Benzo(a) Pyrene	U022	0.03	1	2	0	0	10	21	3			3		6		28
7440-43-9	Cadmium	D006	0.03	1	3	0	0	10	22	3		3	3	3	12		35
	Cadmium Compounds																
543-90-8	Cadmium acetate	D006	0.85	1	3	1	0	10	24	3		3	3	3	12		37
7789-42-6	Cadmium bromide	D006	1.1	1	0	0	0	10	17	3		3	3	3	12		30
10108-64-	Cadmium chloride	D006	1.03	1	3	1	0	10	24	3		3	3	3	12		37
7790-80-9	Cadmium Iodide	D006	0.28	1	2	0	0	10	21	3		3	3	3	12		34
30-67-6	Cadmium powder	D006	0.1	1	3	0	0	10	22	3		3	3	3	12		35
10325-94-	Cadmium Nitrate	D006,D001	0.1	1	3	0	1	10	24	3		3	3	3	12		37
10124-36-	Cadmium sulfate	D006	2.4	1	3	0	0	10	22	3		3	3	3	12		35
57-74-9	Chlordane	U036,D020	0	1	4	0	0	20	41	3		3	3		9		51
218-01-9	Chrysene	U050	0.1	1	2	1	1	10	24	3			3		6		31
7440-50-8	Copper		0.75	1	2	0	0	10	21			3	3		6		28
206-44-0	Fluoranthene	U120	0.01	1	2	0	0	10	21	3			3		6		28
91-20-3	Naphthalene	U165	3.71	1	2	2	0	10	24	3		3	3	3	12		37
56-35-9	Tributyltin oxide		0.19	1	2	1	1	5	16				3		3		20
688-73-3	Tributyltin hydride		0.1	1	2	1	1	5	16				3		3		20
120-82-1	1,2,4-Trichlorobenzene		0.01	1	2	1	0	10	22	3				3	6		29
95-94-3	1,2,4,5- Tetrachlorobenzene	U207	0.01	1	1	1	0	15	29	3				3	6		36
95-95-4	2,4,5-Trichlorophenol	F027,D041	0.1	1	3	1	1	20	43	3		3		3	9		53
101-55-3	4-Bromophenyl phenyl ether	U030	0	1	2	1	0	0	5	3				3	6		12
83-32-9	Acenaphthene		0.2	1	2	1	0	10	22					3	3		26
208-96-8	Acenaphthylene		0.2	1	2	1	0	10	22					3	3		26
120-12-7	Anthracene		0.3	1	1	0	1	0	3			3		3	6		10
191-24-2	Benzo(g,h,i)perylene		0	1	1	0	0	10	19			3		3	6		26
132-64-9	Dibenzofuran		0.01	1	2	1	0	10	22			3		3	6		29
959-98-8	Endosulfan, alpha	P050	0	1	3	0	0	10	22	3				3	6		29

NIH TARGET CHEMICALS RANKING

CASN	Chemical Name	Waste Code	Quantity Generated CY07 (Kg) (15pts)		Health and Safety Risk on Waste Management N F P A 704 (55pts)					Mandated Regulatory Reduction (15 pts)						Reduction Feasibility Methods (15pts)	Total Points
			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
33213-65-	Endosulfan, beta	P050	0	1	3	0	0	10	22	3				3	6		29
86-73-7	Fluorene	P056	0.005	1	1	1	0	0	3	3				3	6		10
76-44-8	Heptachlor	P059,D031	0	1	2	0	0	10	21	3		3		3	9		31
118-74-1	Hexachlorobenzene	U127,D032	0	1	3	1	0	10	24	3		3		3	9		34
87-68-3	Hexachlorobutadiene	U128,D033	0.01	1	2	1	1	10	24	3		3		3	9		34
58-89-9	Hexachlorocyclohexane		0	1	3	0	0	10	22			3		3	6		29
67-72-1	Heaxachloroethane	U131	0.01	1	1	0	0	0	2	3		3		3	9		12
72-43-5	Methoxychlor	U247, P014	0	1	1	0	0	20	36	3		3		3	9	15	61
40487-42-	Pendimethalin	D001	0	1	2	0	1	0	5			3		3	6		12
608-93-5	Pentachlorobenzene	U183	0	1	3	0	0	10	22	3		3		3	9		32
82-68-8	Pentachloronitrobenzene (Quintozene)	U185	0	1	2	1	0	10	22	3				3	6		29
87-86-5	Pentachlorophenol	F027,D037	3.06	1	3	0	0	10	22	3		3		3	9		32
85-01-8	Phenanthrene		0.21	1	2	1	0	10	22			3		3	6		29
1336-36-3	Polychlorinated biphenyls (PCBs)		0.15	1	2	1	0	20	40	3		3		3	9	15	65
129-0-0	Pyrene		0.05	1	2	1	0	10	22					3	3		26
1582-09-8	Trifluralin		0	1	2	1	0	0	5			3		3	6		12
75-69-4	Trichlorofluoromethane (CFC-11)	U121	0.4	1	1	0	1	20	38	3	3	3	3		12	15	66
75-71-8	Dichlorodifluoromethane (CFC-12)	U075	15.9	1	2	0	0	20	38	3	3	3	3		12	15	66
76-13-1	1,1,2-Trichlorotrifluoroethane (CFC-113)		10.2	1	2	0	0	20	38		3		3		6	15	60
56-23-5	Carbon Tetrachloride	U211,D019	49.2	5	3	0	1	20	41	3	3	3	3		12		58
71-55-6	1,1,1-Trichloroethane	U226	46.1	5	3	1	1	20	43	3	3	3	3		12		60
7440-22-4	Silver	D011	94.9	5	1	0	0	20	36	3		3	3		9		50
	Silver Compounds																
563-63-3	Silver acetate	D011	0.4	1	1	0	0	20	36	3		3	3		9		46
532-31-0	Silver Benzoate	D011	0.8	1	2	0	0	20	38	3		3	3		9		48
7785-23-1	Silver Bromide	D011	1.4	1	2	0	0	20	38	3		3	3		9		48
534-16-7	Silver carbonate	D011	0.14	1	1	0	0	20	36	3		3	3		9		46

NIH TARGET CHEMICALS RANKING

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			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
7783-90-6	Silver chloride	D011	4.1	1	2	0	0	20	38	3		3	3		9		48
3315-16-0	Silver cyanate	D011	0.25	1	1	0	0	20	36	3		3	3		9		46
22199-08-	Silver sulfadiazine	D011	0.1	1	1	0	0	20	36	3		3	3		9		46
7775-41-9	Silver fluoride	D011	0.02	1	2	0	0	20	38	3		3	3		9		48
7783-97-3	Silver iodate	D011,D001	0.05	1	2	1	0	20	40	3		3	3		9		50
7783-96-2	Silver iodide	D011	0.01	1	1	0	1	20	38	3		3	3		9		48
128-00-7	Silver lactate	D011	0.08	1	1	0	0	20	36	3		3	3		9		46
2386-52-8	Silver methanesulfonate	D011	0.05	1	0	0	0	20	34	3		3	3		9		44
20667-12-	Silver oxide	D011,D001	1.14	1	2	0	1	20	40	3		3	3		9		50
7783-93-9	Silver perchlorate	D011,D001	0.01	1	2	0	2	20	41	3		3	3		9		51
14242-05-	Silver perchlorate hydrate	D011,D001	0.02	1	2	0	2	20	41	3		3	3		9		51
7761-88-8	Silver nitrate	D011	9.03	1	2	0	0	20	38	3		3	3		9		48
7783-99-5	Silver nitrite	D011	0.07	1	2	1	0	20	40	3		3	3		9		50
10294-26-	Silver sulfate	D011	0.21	1	2	0	0	20	38	3		3	3		9		48
14104-20-	Silver tetrafluoroborate	D011	0.1	1	3	0	1	20	41	3		3	3		9		51
2923-28-6	Silver trifluoromethane sulfonate	D011	0.04	1	2	1	1	20	41	3		3	3		9		51
2966-50-9	Silver trifluoroacetate	D011	0.07	1	2	0	0	20	38	3		3	3		9		48
13497-94-	Silver vanadate	D011	0.04	1	2	1	0	20	40	3		3	3		9		50
7440-38-2	Arsenic	D004	0.005	1	3	0	0	20	40	3		3	3		9		50
	Arsenic Compounds																
98-50-0	4-Arsanilic acid	D004	0.2	1	3	0	0	20	40	3		3	3		9		50
1303-28-2	Arsenic Oxide	P011,D004	0.2	1	3	0	0	20	40	3		3	3		9		50
1327-53-3	Arsenic Trioxide	P012,D004	2.04	1	3	0	1	20	41	3		3	3		9		51
138608-19-	Arsenazo III sodium salt	D004	0.001	1	3	0	0	20	40	3		3	3		9		50
75-60-5	Cacodylic acid	D004 U136	1.2	1	3	1	1	20	43	3		3	3		9		53
124-65-2	Sodium cacodylate	D004	4.6	1	2	0	1	20	40	3		3	3		9		50
637-03-6	Phenylarsine oxide	D004	0.61	1	3	0	0	20	40	3		3	3		9		50
7784-41-0	Potassium arsenate	D004	1.21	1	2	0	0	20	38	3		3	3		9		48
7778-43-0	Sodium arsenate	D004	1.63	1	2	0	0	20	38	3		3	3		9		48
7784-46-5	Sodium arsenite	D004	3.31	1	3	0	0	20	40	3		3	3		9		50

NIH TARGET CHEMICALS RANKING

CASN	Chemical Name	Waste Code	Quantity Generated CY07 (Kg) (15pts)		Health and Safety Risk on Waste Management N F P A 704 (55pts)					Mandated Regulatory Reduction (15 pts)						Reduction Feasibility Methods (15pts)	Total Points
			Wt/Kg	Pts	H	F	R	nsc20	Pts	rcra	ods	dhhs	np2	npep	Pts	ALT	POINTS
7440-39-3	Barium	D005	0	1	3	0	0	10	22	3		3	3		9		32
	Barium Compounds																
543-80-6	Barium acetate	D005	1.8	1	3	0	0	10	22	3		3	3		9		32
513-77-9	Barium carbonate	D005	3.5	1	2	0	0	10	21	3		3	3		9		31
10361-37-	Barium chloride	D005	2.3	1	3	0	0	10	22	3		3	3		9		32
13845-17-	Barium Dithionate Dihydrate	D005	0.5	1	3	0	0	10	22	3		3	3		9		32
17194-00-	Barium Hydroxide	D005	3.1	1	3	0	0	10	22	3		3	3		9		32
13718-50-	Barium Iodide	D005	0.03	1	2	0	0	10	21	3		3	3		9		31
10022-31-	Barium Nitrate	D005,D001	2	1	1	0	0	10	19	3		3	3		9		29
516-02-9	Barium Oxalate	D005	0.5	1	1	0	0	10	19	3		3	3		9		29
1304-28-5	Barium Oxide	D005	1.5	1	3	0	2	10	26	3		3	3		9		36
13718-58-	Barium Periodate	D005	0.5	1	1	0	0	10	19	3		3	3		9		29
13762-83-	Barium Phosphate	D005	1.2	1	1	0	0	10	19	3		3	3		9		29
7727-43-7	Barium Sulfate	D005	1.8	1	0	0	0	10	17	3		3	3		9		27
5908-81-6	Barium Tartrate	D005	1.2	1	1	0	0	10	19	3		3	3		9		29
7782-49-2	Selenium	D010	0.15	1	2	0	0	10	21	3		3	3		9		31
	Selenium Compounds																
8/4/7446	Selenium dioxide	D010,U204	0.34	1	3	0	0	10	22	3		3	3		9		32
20405-64-	Copper selenide	D010	0.09	1	2	0	0	10	21	3		3	3		9		31
1666-13-3	Diphenyl diselenide	D010	0.15	1	0	0	0	10	17	3		3	3		9		27
5707-04-0	Phenylselenyl chloride	D010	0.01	1	0	0	0	10	17	3		3	3		9		27
34837-55-	Phenylselenyl bromide	D010	0.06	1	0	0	0	10	17	3		3	3		9		27
7790-59-2	Potassium selenate	D010	0.02	1	3	0	0	10	22	3		3	3		9		32
3425-46-5	Selenocyanic acid, potassium salt	D010	0.01	1	0	0	0	10	17	3		3	3		9		27
10102-18-	Sodium selenite	D010	0.07	1	3	0	0	10	22	3		3	3		9		32
13410-01-	Sodium selenate	D010	0.39	1	3	0	0	10	22	3		3	3		9		32

NOTE: nsc = NIH Special Concern, rcra = RCRA, ods = Ozone Depleting Substance, dhhs = DHHS, np2 = NIH Pollution Prevention, npep = National. Partnership for Enviromental Priorities, ALT = Green Alternatives

MEETING MINUTES

Sustainable Lab Practices Working Group
NIH Environmental Management System (NEMS)
Wednesday, April 16, 2008

ATTACHMENT 2

NIH EMS/EMP/Chemical Waste: Laboratory Chemicals
Objective #3: Define Criteria for Identifying Target NIH Chemicals

Proposed Risk-based Criteria for Use in Targeting and Prioritizing Specific NIH Laboratory Chemical Waste Streams for Reduction Efforts

The following is a summary of the ranking criteria applied to the NIH Target Chemical List. Please refer to the NIH Target Chemical spread sheet.

1. **Quantity of waste generation** **15 Points**

   Points were assigned to amount of waste generated based on calendar year 2007 waste disposal data, as follows:

   1,000 Kg – 10,000 Kg = **15 Points**
   100 Kg – 1,000 Kg = **10 Points**
   10 Kg – 100 Kg = **5 Points**
   0 Kg – 10 Kg = **1 Point**

2. **Direct risk to human health and safety during research, facility support, and on-site waste management activities: generation, handling, storage, transportation, recycling, treatment and disposal.** **55 Points**

   Risk determination is based on the National Fire Protection Association (NFPA) 704M Rating System for the three NFPA rating categories of interest (Health, Flammability, and Reactivity). A chemical may receive a maximum of 4 points for each individual NFPA category for a total of 12 points.
   Additionally, a category was added for "NIH Special Concern (NSC)". This special category is worth a maximum of 20 points depending on what zone a chemical is assigned as described below. A mathematical conversion factor was applied resulting in a maximum number of 55 points for this criterion.

   ZONE A (20 pts)
   - Very high Disposal cost associated with waste
   - WSSC discharge limitation (for Cd, Cr, Cu, Pb, Ni, Ag, Zn)
   - Persistent Bioaccumulative and Toxic (PBT) concern
   - Severe toxicity characteristic
   - Restricted use or ban [Zone A only]
   - Limited disposal/treatment options
   - Very high Decommission cost
   - Very high Spill clean-up and remediation cost

ZONE B (15 pts)
- High disposal cost
- WSSC discharge limits (for Cd, Cr, Cu, Pb, Ni, Ag, Zn)
- Persistent Bioaccumulative and Toxic (PBT) concern
- High toxicity characteristic
- Limited disposal/treatment options
- High Decommission cost
- High Spill clean-up and remediation cost

ZONE C (10 pts)
- Moderate disposal cost
- WSSC discharge limits (for Cd, Cr, Cu, Pb, Ni, Ag, Zn)
- Persistent Bioaccumulative and Toxic (PBT) concern
- Moderate toxicity characteristic
- Moderate Decommission cost
- Moderate clean-up and remediation cost

ZONE D (5 pts)
- WSSC discharge limits (for Cd, Cr, Cu, Pb, Ni, Ag, Zn)
- Toxicity characteristic
- Low Decommission cost
- Low clean-up and remediation cost

3. Wastes subject to specific reduction mandates in statutes, regulations, executive orders and agency plans. 15 Points

3 points are awarded for each applicable mandate for a maximum of 15 points for this criterion.

a. All regulated hazardous wastes (RCRA minimization requirement).
b. Ozone Depleting Substances (ODS) (E.O. 13423).
c. Chemicals subject to agency (DHHS) goals for reductions in releases and/or off-site transfers (E.O.13423).
d. Chemicals targeted in NIH Pollution Prevention Plan (NP2).
e. Chemicals found on EPA's "National Partnership for Environmental Priorities (NPEP)" list.

4. Availability and feasibility of reduction methods. 15 Points

Reduction methods must be available and achievable without causing excessive adverse impacts on scientific productivity and other mission activities. Evaluations of potential chemical reduction methods should consider several important issues, such as:

- Are less hazardous or Green alternative chemicals available?
- Are the alternative procedures or chemicals approved for use in biomedical applications?
- Are they validated for use in specific research protocols?
- Is the required instrumentation/equipment available?

MEETING MINUTES

Sustainable Lab Practices Working Group
NIH Environmental Management System (NEMS)
Wednesday, April 16, 2008

ATTACHMENT 3

Buying Green: EO 13423

Sustainability Defined

Sustainability is a characteristic of a process or state that can be maintained at a certain level indefinitely. It also refers to making human economic systems last longer and have less impact on ecological systems.

Fisher Scientific

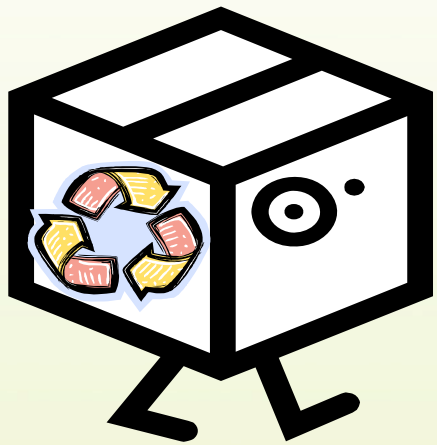
Types of Green Initiatives

Process Approach

Improve production and business operations to reduce the use of energy and materials as well as reduce wastes and emissions associated with product manufacturing, supply chain processes or consumption

Product Approach

Use green products that have preferable environmental attributes when compared with similar products (e.g., use recycled materials, are energy efficient, are easily recycled)



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Greening the Supply Chain- Matching the Environmental Needs of our Customers

CDC Profile Today – EO 13423

- (a) improve energy efficiency and reduce greenhouse gas emissions of the agency

- (d) require in agency acquisitions of goods and services (i) use of sustainable environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products

- (h) ensure that the agency (i) when acquiring an electronic product to meet its requirements, meets at least 95 percent of those requirements with an Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic product, unless there is no EPEAT standard for such product (ii) enables the Energy Star feature on agency computers and monitors

Fisher Scientific

- Distribution of multiple vendors allows you to consolidate orders to minimize truck shipments, lowering CO_2 emissions.
- Integrated global logistics network with secure warehouses reduce energy consumption, air transportation, and excess multiple shipments

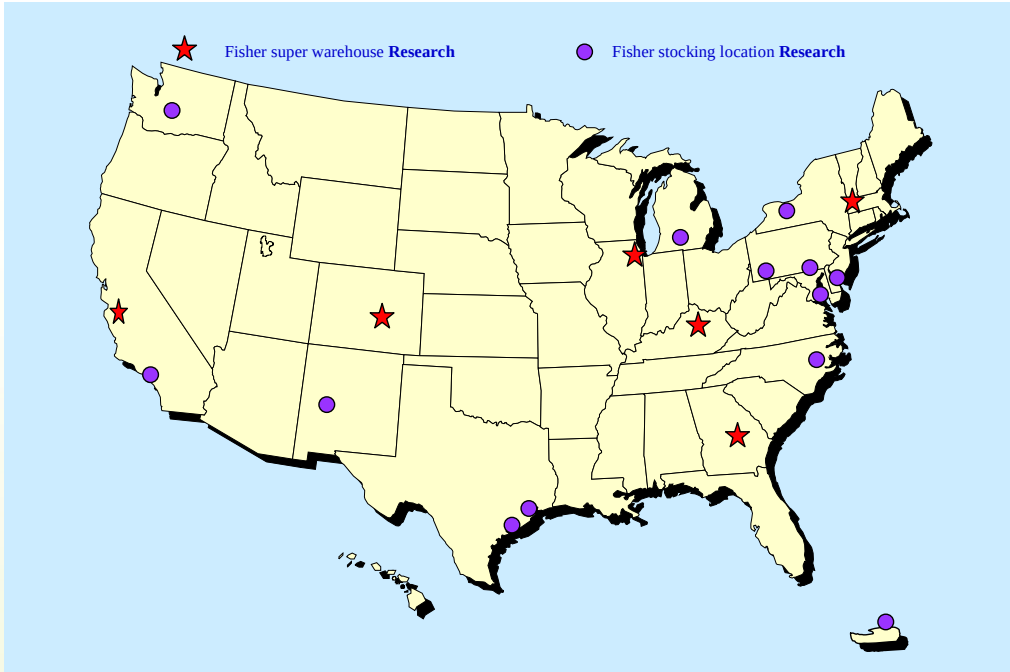
- Partnering with industry-leading suppliers to develop sustainable business practices
- Environmentally Friendly Product Guide
- BioPreferred program in USDA

- Energy Star project using the Thermo Scientific brand to develop, along with the EPA, a testing standard for high-efficiency laboratory refrigerators and freezers

Fisher Scientific

How can Fisher Scientific help?

- Fisher can help to save a total of 3.8 million pounds or 1,745 tons of CO_2 emissions from excessive transportation per year
- Close proximity to customers in the Northeast through our warehouses help reduce GHG emissions
  - Reduction of air transportation
  - Reduction of long distance needs
  - Utilize ground transportation whenever possible (90% reduction of CO_2 emissions)
- On average, Fisher Scientific's warehouses are 135 miles from our customers



Warehouse Locations

Assumption: Calculations based on 22 nationwide accounts

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Snapshot of Green Activities at Fisher Scientific

Did you know?

- Customer driven e-commerce through Fisher's multiple IT platforms eliminated more than **7.3 million invoices** and purchase orders that previously required paper transactions. Savings from reduced electrical energy and paper usage eliminated more than **1.3 million lbs of annual Carbon emissions.**
- Through better management of the 2008/09 Research Catalog production process, Fisher Scientific saved **22,080,000** pages of paper—equal to saving **275** trees (1 foot in diameter and 60 feet tall)!

Fisher Scientific

Snapshot of Green Activities at Fisher Scientific

- Fisher Scientific Research Division has embarked on a major effort to reside in a greener building by focusing on energy and water conservation
- Working with Supplier Green Programs
- Partnerships with major universities & research institutions to achieve sustainability goals
- Environmentally Friendly Product Guide
- USDA BioPreferred program

Fisher Scientific

Fisher Chemical

Thermo SCIENTIFIC

ABgene	HyClone	Nicolet
Barnant	Hypersil	Orion
Barnstead	IEC	Owl
Cellomics	Lab Vision	Pierce
Dharmacon	Lab-Line	Precision
EC	Labsystems	Revco
Erie	Lindberg/Blue M	Richard-Allan
Forma	Matrix	Savant
Haake	Microgenics	Shandon
Hamilton	Napco	Sorvall
Hybaid	Neslab	Spectronic

5 PRIME

eppendorf

Organic Sales and Marketing inc.

Decon Labs, Inc.

BULBTRONICS The Brightest Source on Earth

Promega

ACROS ORGANICS

Fisher Scientific

A Survey of 22 Fisher Scientific's Suppliers

- 82% are using recycled packaging material
- 73% redesigning packaging
- 77% use energy-efficient light fixtures and alternative fuels, these are used more often in the office and production
- 59% use energy-efficient light fixtures and alternative fuels the warehouse
- 55% participates in reduction of Virgin Plastic
- 18% participates in delivery-fleet Fuel Conservation
- 14% of respondents participated in Life Cycle Analysis
- 14% participate in water conservation in production
- Four out of five companies participated in offering products that have replaced toxic chemicals, compared to offering products that contain post-consumer recycled content and offering product that have replaced high-energy processes

Fisher Scientific

Examples of Green Products- Available through Fisher Scientific

Corning HyperFlask Cell Culture Flasks

- A revolutionary new flask that provides 10 times the cell yield (~200 million cells) with the same dimensions as a T175 cm2 flask!
- **Reduces the amount of plastic waste from 10 T175cm^2 flask by 30%.**

Additional benefits include:

- Incubator space savings
- Reduction in solid waste
- Bar-coded to assist inventory
- Surface treated with Corning* CellBIND*

Kimberly-Clark Sterling Nitrile Gloves

- 50% more gloves per box reduces packaging waste
- Potential to save at least 2,200 lbs of waste per year
- **39% less material**

Additional benefits include:

- Latex free: eliminates latex exposure to employees
- Nitrile material provides chemical resistance

Fisher Scientific

New Environmentally Friendly Products- Continually Introduced

- **OSM All-Natural Cleaners**
  - **Vegetable/enzyme-based Cleaning Products for laboratory, janitorial, vivarium applications**
- **Reusable pipet-tip boxes and reloading system**
  - **Fisherbrand SureGrip Pipet Tip Reload System**
- **Non-toxic, non-organic-chemical-based nucleic acid purification kits**
  - **5 Prime PerfectPure DNA & RNA Blood Purification Kits**

Fisher Scientific

New Environmentally Friendly Chemical Packaging

- New Fisher EcoSafPak
- 100 % recyclable packaging
- Significantly reduced Styrofoam wastes in landfills
- Eliminated 1.2 million pounds of annual Green House Gas emissions
- Equivalent to 1040 twenty cubic yard dumpsters
- All configurations will be changed by mid- year 2008
- Warehouse “less than case quantities” migrating to new carton
  - Reduction of 420,000 lbs of Styrofoam
  - Elimination of .41 MM lbs of GHG emissions

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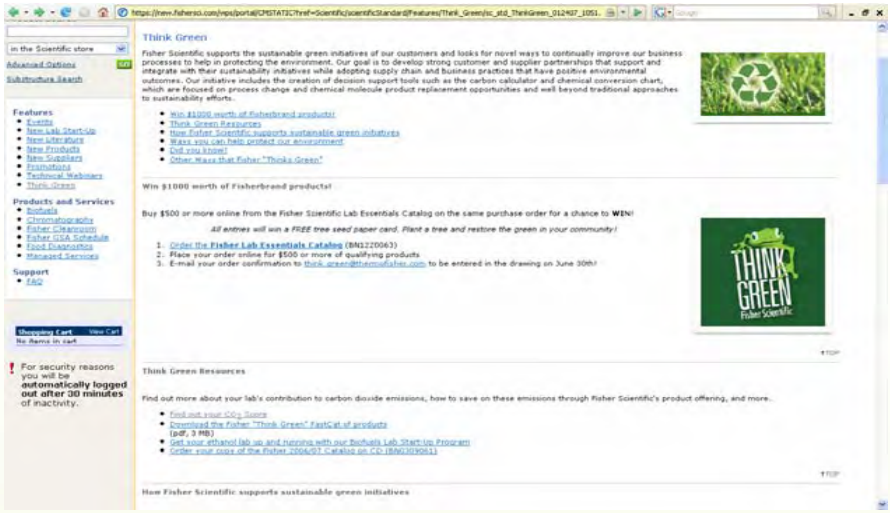
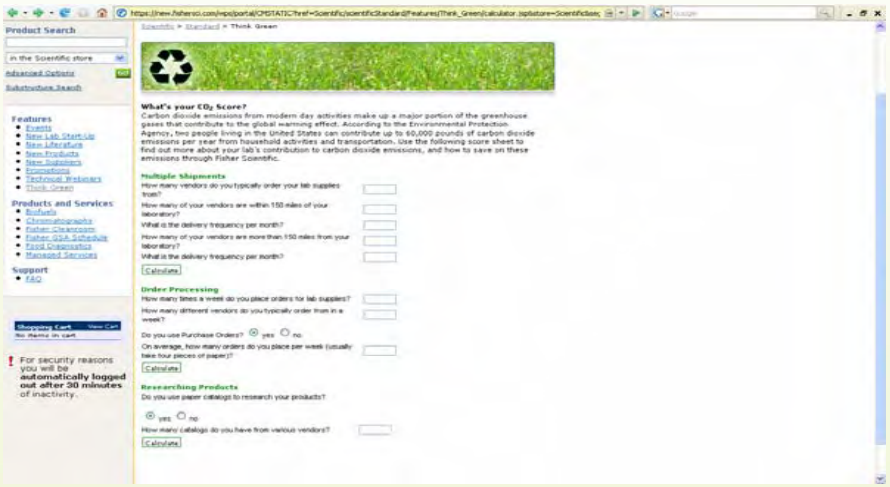
Introducing Fisher Scientific's Think Green Website



- Showcases Fisher's efforts in protecting the environment
- Suggestions on how to reduce Green House Gases
- Environmentally Friendly Product Guide



- Suggestions for "going green"
- Carbon Calculator
- New updates to Green Products

Now online - Green icons for Environmentally Friendly Products!

Fisher Scientific

Summary

- Sustainability can be achieved through everyday activities
- Establish metrics & benchmark
- Recycle whenever possible & reuse packaging materials
- Incorporate your supplier into your sustainability initiatives
- Utilize supplier paperless E-commerce capabilities (EDI)
- Where possible, use electronic or CD versions of catalogs
- Through planning, eliminate the need for rush air shipments
- Evaluate on campus vehicle activity
- Incorporate chemical management into site sustainability initiatives

Fisher Scientific

MEETING MINUTES

Sustainable Lab Practices Working Group
NIH Environmental Management System (NEMS)
Wednesday, April 16, 2008

ATTACHMENT 4

Selected NEMS Objectives: 2007 Lab Activities

ENVIRONMENTAL ASPECT	5-YEAR GOAL	OBJECTIVE	LEAD	STATUS
Chemical Waste	**1.** Develop/Improve/ Update Program Management Tools.	**a.** Identify a chemical inventory system for a pilot study.	Charlyn Lee	Currently testing and training on the Vertere system.
		b. Conduct pilot of inventory system in 10 labs.	Charlyn Lee	NEW OBJECTIVE
	2. Reduce Disposal of Unused Chemicals by 30% by 2009.	**a.** Generate baseline and develop strategy for reducing unused chemicals.	Charlyn Lee / David Mohammadi	Baseline data generated. Need to establish focus group to develop strategy
	3. Reduce Disposal Rates of NIH Target Chemicals.	**a.** Generate baseline and develop strategy to reduce disposal rates of target chemicals.	Charlyn Lee	Identification of chemicals targeted for minimization complete. Need to rank and distribute to labs
		b. Conduct feasibility study to identify opportunities to reduce lab equipment with mercury components.	Charlyn Lee	Remains an objective for 2008
		c. Reduce or eliminate the procurement, use and disposal of mercury containing equipment	Charlyn Lee	NEW OBJECTIVE
Medical Pathological Waste	**1.** Reduce Medical Waste Shipped for Off-Site Incineration by 75% by 2009.	**a.** Gain approval and funding for purchase of on-site treatment equipment.	Don Wilson	Ongoing. DEP is trying to procure a tissue digester for on-site treatment of MPW.
		b. Initiate acquisition process for equipment.	Don Wilson	Awaiting identification of source for tissue digester.
		c. Plan for educational outreach to train users of new sorting, labeling, and packaging procedures required for use of the new system.	Don Wilson	Awaiting equipment purchase.
Radioactive Waste	**1.** Reduce off-site disposal of liquid scintillation vials	**a.** Install system to treat vials when required building renovation is complete.	Wendy Rubin	COMPLETE
		b. Investigate potential for procuring treatment system for treating liquid at NIH.	Wendy Rubin	Ongoing.
NEMS Improvements	**1.** NEMS Deployment and Maintenance	**a.** Document Laboratory Procedures with SOPs	Dawn Walker	In progress.
		b. Revise and implemented Lab Safety Refresher Training	TBD	COMPLETE
		c. Revise Waste Disposal Guide	Charlyn Lee and Don Wilson	In progress.