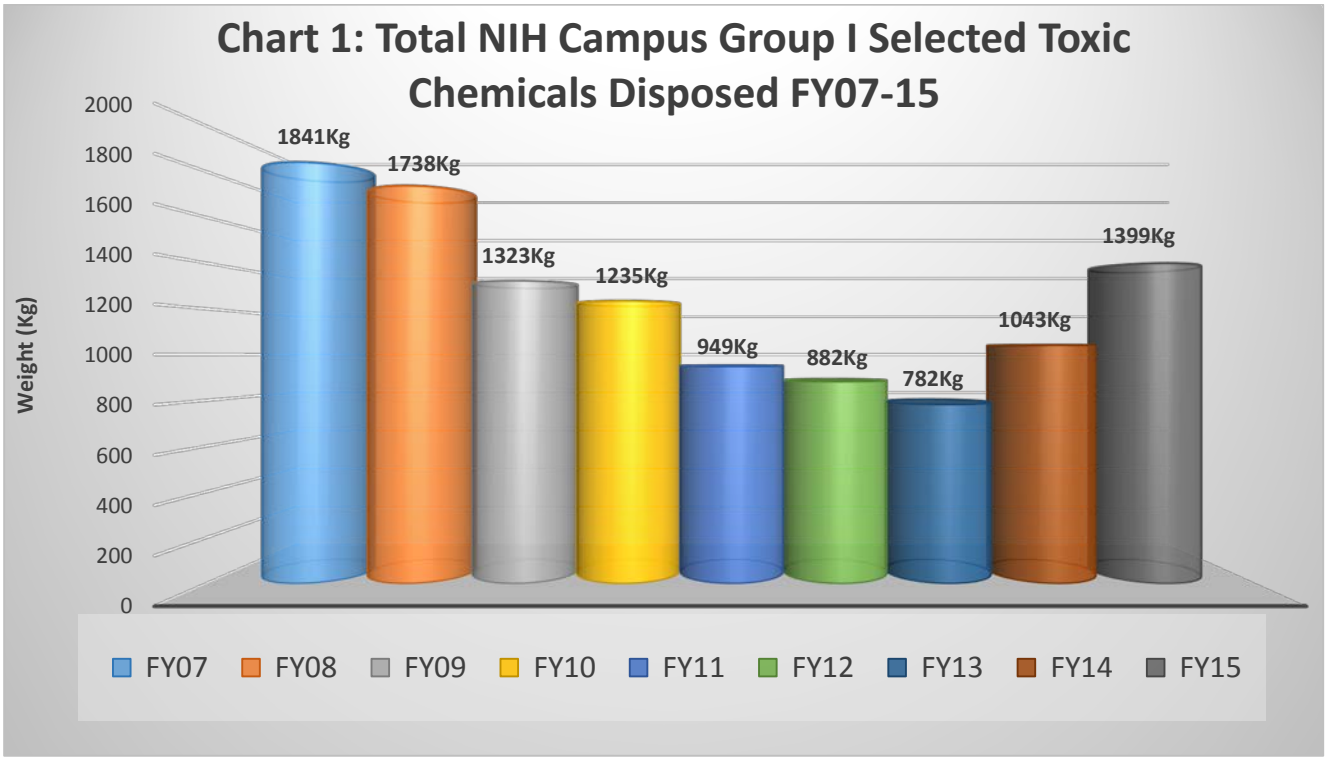
Toxic Chemical Reduction Initiative Data

NIH usage of toxic chemicals have been reducing consistently as evident on amount of waste generated over the years since the inception of the Toxic Chemical Reduction Initiative. The Group I NIH Selected Toxic Chemicals shown a modest decrease from FY07 to FY13 with an increase in FY14 and FY15.

Table 1: NIH MAIN CAMPUS GROUP I TOXIC CHEMICALS USAGE FY2007- FY2015 (KG)

TOXIC CHEMICALS	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	TOTAL
CHLOROFORM	877.51	748.28	671.81	585.86	468.12	433.76	407.22	497.58	488.55	5178.69
PHENOL	402.17	364.55	284.01	262.56	232.69	219.88	170.86	263.49	341.23	2541.445
ETHIDIUM BROMIDE	190.94	192.51	125.01	120.55	112.08	102.08	89.37	73.44	74.27	1080.254
PHOSPHORIC ACID	161.81	118.53	70.17	94.58	53.33	73.74	55.52	102.79	462.11	1192.578
CHROMIC ACID	1.73	2.95	3.99	2.04	2.28	1.48	0.89	0.61	0.45	16.41534
PICRIC ACID	6.69	6.62	3.32	1.60	1.99	2.24	4.14	2.83	2.30	31.736
ETHYLENE OXIDE	0.10	0.23	0.98	0.00	0.00	0.08	0.00	0.37	0.04	1.79
MERCURY	190.71	298.36	161.21	166.80	75.10	46.54	50.57	93.53	26.64	1109.46
MERCURY COMPOUNDS	9.12	6.09	2.34	1.24	3.00	2.06	3.66	8.07	3.46	39.0401
TOTALS (Kg)	1841	1738	1323	1235	949	882	782	1043	1399	11191.4
ANNUAL INCREASE/DECREASE		-102.66	-415.29	-87.60	-286.64	-66.73	-99.63	260.48	356.34	
PERCENTAGE CHANGE		-6%	-24%	-7%	-23%	-7%	-11%	33%	34%	

Increases in FY14 and FY15 were due to Operations Clean Sweep to inventory and discard all unwanted biological agents and lab chemicals, the opening and occupation of new Neuroscience Research Center Building and FDA's relocation to their new campus in White Oak.



The Group II NIH Selected Toxic Chemicals have also shown a modest decrease from FY07 to FY13 with increases in FY14 and FY15.

Table 2: NIH MAIN CAMPUS GROUP II TOXIC CHEMICALS USAGE FY07 - FY15 (KG)										
TOXIC CHEMICALS	**FY07**	**FY08**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	**FY15**	**TOTAL**
METHANOL	5992.71	6014.62	6252.20	5445.65	4698.41	4466.84	4499.38	4777.32	5791.52	47938.65
ACETONITRILE	3762.67	3572.34	3419.11	3930.14	3588.42	3455.43	3450.82	2964.45	3328.10	31471.47
XYLENE	2474.06	2551.08	2939.41	2932.82	3160.26	2818.44	2806.68	2401.55	2301.20	24385.50
HEXANE	1001.79	1123.68	1498.13	1091.16	900.05	776.03	947.30	866.23	767.14	8971.51
DICHLOROMETHANE	1079.42	1246.80	1249.67	1073.54	1051.39	583.27	630.41	748.97	500.99	8164.46
FORMALDEHYDE	754.62	843.71	770.65	934.07	863.36	994.54	893.28	912.05	1151.83	8118.12
DIMETHYLFORMAMIDE	553.44	612.29	292.57	608.88	1068.98	1038.16	861.94	855.77	794.49	6686.52
METHYLPYRROLIDONE	218.99	360.34	422.72	434.29	427.23	312.30	340.78	245.19	112.37	2874.22
TRICHLOROACETIC ACID	102.63	108.88	91.13	107.13	102.94	88.55	85.86	130.74	97.64	915.51
CARBON TETRACHLORIDE	42.69	40.41	33.78	47.52	56.78	38.90	47.22	65.06	72.63	444.99
1,1,1-TRICHLOROETHANE	37.49	34.93	33.43	44.56	55.82	38.33	36.76	54.63	68.98	404.93
TOTALS (KG)	**16021**	**16509**	**17003**	**16650**	**15974**	**14611**	**14600**	**14022**	**14987**	**140376**
ANNUAL INCREASE/DECREASE		489	494	-353	-676	-1363	-10	-578	965	
PERCENTAGE CHANGE		3.05%	2.99%	-2.08%	-4.06%	-8.53%	-0.07%	-3.96%	6.88%	
TOTAL (TONS)	18	18	19	18	18	16	16	15	16	

Increases in FY14 and FY15 was due to Operations Clean Sweep to inventory and discard all unwanted biological agents and lab chemicals, occupation of new Neuroscience Research Center Building and FDA's relocation to their new campus in White Oak.

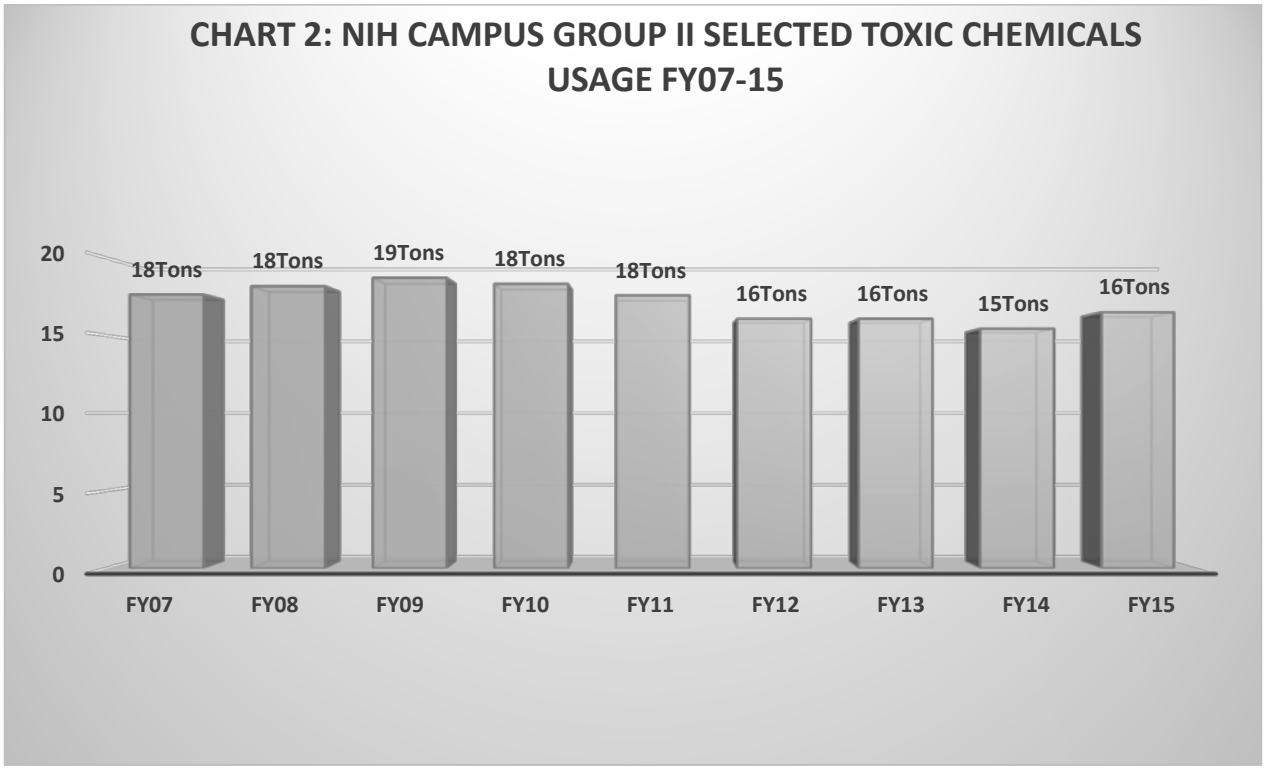
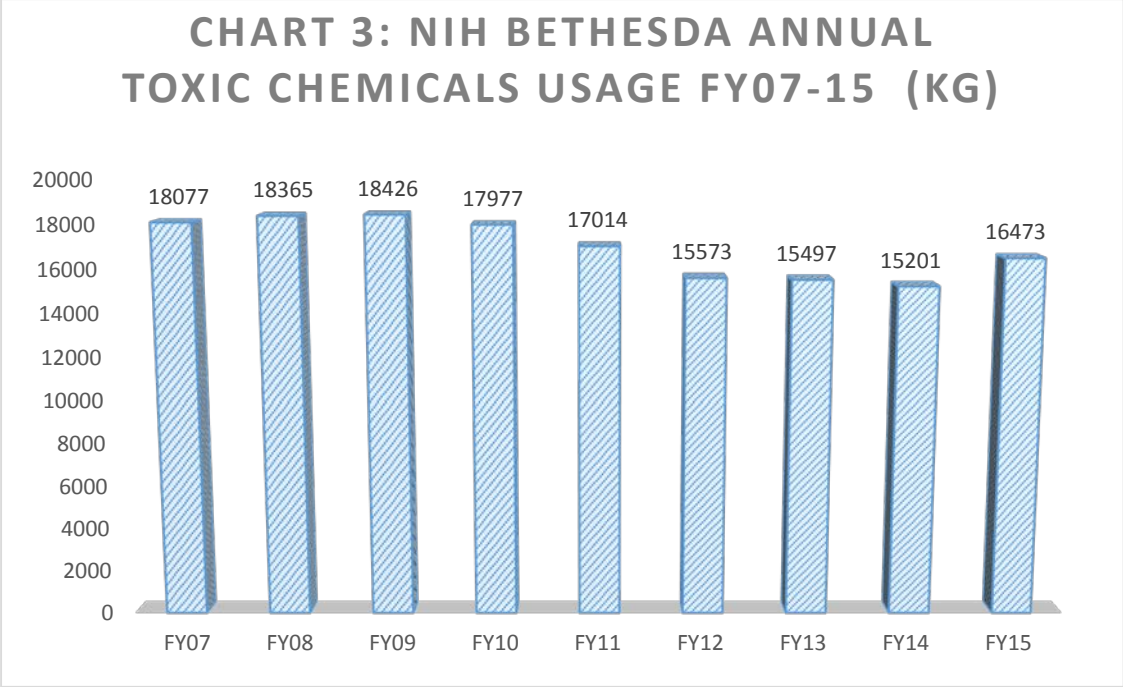


Table 3 is an illustration of NIH's main campus annual usage of toxic chemical in FY07 to FY15:

Table 3: NIH MAIN CAMPUS ANNUAL TOXIC CHEMICALS USAGE FY07 - FY15 (KG) *Lead from renovation waste unaccounted on total										
TOXIC CHEMICALS	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	TOTAL
*LEAD	800.22	681.69	4732.85	15172.28	13942.04	12125.38	15368.26	9453.87	5667.88	77944.46
1,1,1-TRICHLOROETHANE	37.49	34.93	33.43	44.56	55.82	38.33	36.76	54.63	68.98	404.93
1,1,2-TRIFLUOROTRICHLORO-ETHANE	9.70	2.14	2.68	1.48	1.94	3.08	5.58	4.83	0.34	31.76
2,3,7,8-TETRACHLORODIBENXO-P-DIOXIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
2,4,5-TRICHLOROPHENOL	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.20
ACETONITRILE	3762.67	3572.34	3419.11	3930.14	3588.42	3455.43	3450.82	2964.45	3328.10	31471.47
ANTHRACENE	0.31	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.43
ARSENIC COMPOUNDS	12.56	9.61	3.96	4.23	7.98	4.41	5.60	11.43	7.07	66.85
ATRAZINE	0.36	0.00	0.01	0.00	0.00	0.00	0.00	0.10	0.00	0.47
BARIUM COMPOUNDS	19.78	6.34	4.77	4.83	8.35	6.15	12.65	12.32	3.19	78.38
BENZ(A)ANTHRACENE	0.03	0.00	0.05	0.00	0.00	0.00	0.00	0.01	0.54	0.63
BENZO(A)PYRENE	0.01	0.24	0.11	0.03	0.12	0.00	0.00	0.41	0.01	0.93
CADMIUM	0.05	0.18	0.11	1.70	0.76	0.04	29.72	0.75	0.59	33.90
CADMIUM COMPOUNDS	6.05	1.26	1.10	1.09	0.30	1.06	1.96	4.50	2.00	19.32
CARBON TETRACHLORIDE	42.69	40.41	33.78	47.52	56.78	38.90	47.22	65.06	72.63	444.99
CHLOROFORM	877.51	748.28	671.81	585.86	468.12	433.76	407.22	497.58	488.55	5178.69
CHROMIC ACID	1.73	1.45	3.99	2.04	2.28	1.48	0.89	0.62	0.45	14.93
CHROMIUM COMPOUNDS	29.87	13.74	11.92	4.89	7.75	5.65	6.57	22.07	10.78	113.24
COPPER	0.25	0.75	0.80	0.49	0.07	0.00	1.29	0.62	1.50	5.77
DICHLORODIFLUOROMETHANE	15.64	3.05	23.34	3.48	2.22	5.42	1.05	6.05	4.78	65.03
DICHLOROMETHANE	1079.42	1246.80	1249.67	1073.54	1051.39	583.27	630.41	748.97	500.99	8164.46
DIMETHYLFORMAMIDE	553.44	612.29	292.57	608.88	1068.98	1038.16	861.94	855.77	794.49	6686.52
ETHIDIUM BROMIDE	190.94	192.51	125.01	120.55	112.08	102.08	89.37	73.44	74.27	1080.25
ETHYLENE OXIDE	0.11	0.23	0.98	0.00	0.00	0.08	0.00	0.37	0.04	1.80
FORMALDEHYDE	754.62	843.71	770.65	934.07	863.36	994.54	893.28	912.05	1151.83	8118.12
HEXANE	1001.79	1123.68	1498.13	1091.16	900.05	776.03	947.30	866.23	767.14	8971.51
LEAD COMPOUNDS	8.40	2.43	1.90	1.37	5.08	0.55	3.59	9.01	2.49	34.82
MERCURY	190.71	298.36	161.22	166.80	75.10	46.54	50.57	93.53	26.64	1109.47
MERCURY COMPOUNDS	9.12	6.10	2.34	1.24	3.00	2.06	3.66	8.07	3.46	39.05
METHANOL	5992.71	6014.62	6252.20	5445.65	4698.41	4466.84	4499.38	4777.32	5791.52	47938.65
METHYLPYRROLIDONE	218.99	360.34	422.72	434.29	427.23	312.30	340.78	245.19	112.37	2874.22
NAPHTHALENE	3.71	0.86	0.13	0.57	0.25	0.25	0.19	3.85	0.01	9.82
PENTACHLOROPHENOL	3.13	0.30	0.92	0.00	0.00	0.04	0.00	0.01	0.17	4.57
PERCHLORIC ACID	3.57	7.20	9.40	5.78	5.42	4.14	2.59	13.18	4.77	56.05
PHENOL	402.17	364.55	284.01	262.56	232.69	219.88	170.86	263.49	341.23	2541.45
PHOSPHORIC ACID	161.81	118.53	70.17	94.58	53.33	73.74	55.52	102.79	462.11	1192.58
PICRIC ACID	6.69	6.62	3.32	1.60	1.99	2.24	4.14	2.83	2.30	31.73
SELENIUM COMPOUNDS	1.64	2.05	0.18	0.78	16.13	8.24	2.75	10.08	1.78	43.63
SILVER	82.98	54.97	17.75	39.13	18.15	18.26	17.38	11.82	11.12	271.57
SILVER COMPOUNDS	17.09	13.91	20.90	21.90	17.34	23.48	23.65	25.64	36.25	200.16
TRICHLOROACETIC ACID	102.63	108.88	91.13	107.13	102.94	88.55	85.86	130.74	97.64	915.51
XYLENE	2474.06	2551.08	2939.41	2932.82	3160.26	2818.44	2806.68	2401.55	2301.20	24385.50
TOTALS (KG) without LEAD	18077	18365	18426	17977	17014	15573	15497	15201	16473	152603
ANNUAL INCREASE/DECREASE		288	61	-449	-963	-1441	-76	-296	1272	
PERCENTAGE CHANGE		1.59%	0.33%	-2.44%	-5.36%	-8.47%	-0.49%	-1.91%	8.37%	
TOTAL (TONS)	19.88	20.20	20.27	19.77	18.72	17.13	17.05	16.72	18.12	



Waste generated are tracked in NIH's Waste Management Tracking Information System (WMTIS). Most chemicals have shown a steady reduction from FY07 to FY14. Increase in FY15 was due to Operation Clean Sweep to inventory and discard all unwanted biological agents and laboratory chemicals, occupation of the new Neuroscience Research Center Building and FDA's relocation to their new campus in White Oak.

These results are positive accomplishments towards NIH's goals to reduce the quantities of hazardous toxic chemicals and disposal cost savings which also benefits the environment. The NIH's continued effort to reduce or replace toxic chemicals with less toxic environmentally friendly alternatives will be attained with the help of researchers who believe in NIH's stewardship to protect the environment and use our natural resources responsibly.