





- Unfortunately while recycling continues to be a significant activity for ESC, a change in personnel and a clerical error has affected all non-laboratory recycling data for FY08. Estimated values where possible were reported based on what fragmentary data was available. By no means is the information accurate.
- As expected, energy consumption continued to be significant in FY08. While costs went down, natural gas (▼ -9.3%),  electrical  expenses increased dramatically (▲▲ +16.6%). ESC used more electric in FY08 over FY07 (▲ +4.7%) while natural gas consumption decreased by (▼ -4.8%). In the past, heating degree days and cooling degree days could be used to explain the variations. For natural gas consumption, it appears to be correct – heating degree days were down and natural gas consumption was down as well for FY08. For electric consumption, the cooling degree days were down while electric consumption was up. It is therefore likely that the electrical consumption is up due to increased lighting for security reasons; added plug loads and equipment (AC install in the computer room and PBX rooms.) Overall, the standard measure of EPA energy consumption comparisons (BTU/ft²) was down a modest ▼ -1.4% over FY07.
- In FY08, total water consumption  went down slightly over FY07 (▼ 1.8%). However, domestic water consumption continues to increase significantly over the previous year ▲▲ 6.6%. Domestic water is now almost the single largest use of water in the Science Center. Domestic water accounts for 45% of the total water consumption while the traditional biggest user – cooling tower water remains around 49%. Together, the reductions of cooling tower use and boiler feed water helped achieve the overall reduction of 1.8% Cooling tower water consumption went down (▼ 2.6%) as well as doubling the boiler feed water reduction over the previous year (▼▼ 38%).
- In an effort to increase water conservation, the Science Center embarked on easily implementable projects for water saving. The Science Center converted all lavatory faucets over to pressurized low flow aerators and introduced dual flush valves for all toilets within the Science Center. The cost of the unit and install was modest. 
- Overall copy center use was significantly down by over ▼▼ -27% in FY08. The Region III copiers were down ▼ -26.9% while OPP reversed an upward trend by decreasing the copy count by over ▼▼ -32%. Paper acquisition decreased again in FY08 by ▼▼ 20% over the previous fiscal year.
- ESC and EPA HQ (SHEM/FMSD/SFB) completed phase 3 of the Laboratory Control Optimization Project (phase 1 completed in FY06). Project projected savings are not up to initial estimates. While the project has been completed, the



recommendations have not all been fully implemented as of this report. The major change for the system was the documented fact to run all four air handling units at lower speed than run three units at higher speeds. The kW draw on 4 units is less than 3 units. In addition, the system implemented the dual switch mode for laboratories. For the most part, laboratories are programmed to be in unoccupied mode during all hours, unless the light switch is on or the fumehood sash is open. Total air volume has been reduced marginally. The project identified exhaust fan exit velocity as one of the drivers of the system. In the coming months, we will explore the possibility of reducing the exhaust fan exit velocity.

- Produced ESC OPM FMSB web page for the intranet in FY08. The web page takes over for the ESC News that was put out a couple times a year. The new web page incorporates FMSB and EMS activities. In FY09 it is anticipated that Library links will also be included.
- During FY08, ESC initiated a reduction in the grass area mowed. Higher gas prices and the need to reduce gasoline use to reduce emissions were the driving reason to reduce mowed areas. At the end of the mowing season, ESC began tracking the amount of gasoline used by the landscapers. While the data is incomplete, on average the reduced mowing area has decreased weekly gasoline consumption from roughly 20-25 gal/week to 13-15 gal/week. (used 55 gal for the period 8/27-08-9/30/08)
- GSA vehicle mileage decreased (▼ -11.6%) in FY08 for general access vehicles managed by Region III. When the OSC vehicles are included in the total mileage, the use of the vehicles went down ▼ +6.1% in FY08 over FY07 for vehicles not associated with the on scene coordinators. In FY08, we began tracking the amount, type and cost of fuel used for the Region III GSA vehicle fleet. This information will be used to determine future energy conservation efforts. In addition, the report provides the gross fleet miles per gallon data on Region III, OCS and overall Region III/OSC used vehicles.
-

Symbol meanings:

- ▼ Indicator decreasing and the effect is not desired.
- ▲ Indicator is increasing and the effect is not desired.
- ▲▲ Indicator is increasing significantly and the effect is not desired.
- ▼▼ Indicator is decreasing significantly and the effect is not desired.

- ▼ Indicator is decreasing and the effect is desired.
- ▲ Indicator is increasing and the effect is desired.

Activity Note: Shaded area indicate change in counting method or value	Quantity/Note					
	FY03	FY04	FY05	FY06	FY07	FY08
Aluminum cans recycled:	bags 124 (-17.9%)	bags 160 (+26%)	bags 154 (-3.75%)	lbs 352 (+128%)	lbs 484 ⁺	lbs 1,500 ^{!!}
Batteries recycled: (0.133g/ft ³)(2.2#/kg)	237 lbs (2.0ft ³)	112.2 kg (246.8 lbs)	60.9	172.5	173.8	124.9
Boiler Water (gallons)	-	-	-	591,198	486,838 (-17.6%)	301,698 (-38.0%)
Bottles recycled (non-laboratory): - plain glass (bags) - brown bottles (count) - plastic bottles (bags)	11 173 89	18 286 130	24 N/A 171	lbs 198 - 377	lbs 237.5 ⁺ - 254 ⁺	lbs - ^{!!}
Bottles recycled for reuse internally (kg): - laboratory glass - laboratory plastic	N/A N/A	N/A N/A	12 N/A	16.8 27.4	21 140.3	20.8 160
Bottles recycled externally (kg): - laboratory glass - laboratory plastic	N/A N/A	N/A N/A	426.9 63.2	497.5 (+16.5%) 126.1 (+99.5%)	762.6 (+53.3%) 226.3 (+79.5%)	675.5 (-11.4%) 172.5 (-24.7%)
BTU/ gross ft ² (3)	384,512	383,464	396,297	340,003	348,663	343,866
BTU/ft ² /day: (3) (annual daily average)	1053	1050	1086	931	955	942
Cardboard recycled bins of cardboard: (yd ³)	36 (-50%)	99 (+175%)	90 (-9%)	117 (+30%)	90 ⁺	216 ^{!!}
CDs recycled (lbs)	-	-	-	43	73.5 ⁺	21
Coat hangers recycled (lbs):	2 ⁺ (boxes) (46 lbs)	8 (boxes)	4 (boxes) (-50%)	114	70.5 ⁺	52.5

Activity Note: Shaded area indicate change in counting method or value	Quantity/Note					
	FY03	FY04	FY05	FY06	FY07	FY08
Conservation calculations by using 100% recycled paper: ² BTU's of Energy Saved (40k/ream) Pounds of Greenhouse Gases reduced (5.3#/ream) Gallons of Waste Water avoided (21.3g/ream)	-	-	-	-	80,000,000 10,600 42,600	64,000,000 8,480 34,080
Cooling tower water used (gallons):	2,684,980 (-16.4%)	2,832,611 (+5.5%)	3,320,436 (+17.2%)	2,896,763 (-12.8%)	2,803,303 (-3.2%)	2,730,147 (-2.6%)
Copies made on the copy machines (total):	599,889 (-9.0%)	572,769 (-4.5%)	711,496 (+24%)	704,341 (-1.0%)	869,647 (+23.5%)	632,261 ¹ (-27.3%)
Region III copiers:	530,432 (-10.9%)	510,087 (-3.8%)	654,524 (+28%)	663,436 (+1.4%)	816,647 (+23.1%)	596,678 (-26.9%)
OPP copiers:	69,457 (+5.9%)	62,682 (9.7%)	56,972 (-9.0%)	40,905 (-28%)	53,000 (+29.6%)	35,583 (-32.9%)
Copies made (color) (total)	-	-	-	-	-	15,699
DI Water recovered for reuse in boiler system (gal)	-	-	-	-	-	36,820 (Jun-Sep data)
Domestic Water (gallons)	-	-	-	2,116,039	2,337,859 (+10.5%)	2,492,155 (+6.6%)
Electricity cost:	\$398,631	\$395,361	\$542,049	\$653,983	\$642,928	\$749,720
Electricity consumed (KWH):	6,032,250 (+0.7%)	5,277,300 (-12.5%)	6,349,350 (+20.3%)	6,032,250 (-5.0%)	5,925,108 (-1.7%)	6,202,428 (+4.7%)
Fluorescent lights (disposed) (kg):	961 ⁺⁺	233.2 (~1215 bulbs)	72.7	92.6	110	213.4 (+94%)
Fuel oil used/purchased (gallons):	87,496 (+999% over FY00)	0 (-100%)	6,444 (+100%, -19% over FY00)	1,362 (-79%)*	462 (-66.1%)	475 (+2.8%)
Gas consumed (therms): (10 therms = MMBTU)	305,230 (-15.4%)	444,116 (+31.5%)	422,857 (-4.8%)	349,898 (-17.3%)	368,440 (+5.3%)	350,857 (-4.8%)

Activity Note: Shaded area indicate change in counting method or value	Quantity/Note					
	FY03	FY04	FY05	FY06	FY07	FY08
GSA vehicle miles (R3 only): (includes all R3 organizations)	55,520 (-11.7%)	99,890 (+80%)	53,255 (-46.7%)	136,160 (+156%)	141,850 (+4.2%)	125,397 (-11.6%)
GSA vehicle miles (R3 only): (excludes OSC vehicles)	-	-	-	41,460	42,281 (+2.0%)	39,684 (-6.1%)
GSA vehicles used (total times): (excludes OSC vehicles) (R3 only)	412.8	459	500.7	384.4	428.5	395
GSA vehicles (avg mpg)						
Total:	-	-	-	-	-	18.7
OSC:	-	-	-	-	-	17.5
Region III excluding OSC:	-	-	-	-	-	23.0
GSA vehicles (fuel consumption) (gal)						
Total:	-	-	-	-	-	6,627
OSC:	-	-	-	-	-	4,904
Region III excluding OSC:	-	-	-	-	-	1,723
GSA vehicles (fuel consumption) (\$)						
Total:	-	-	-	-	-	\$22,229
OSC:	-	-	-	-	-	\$16,300
Region III excluding OSC:	-	-	-	-	-	\$5,929
Kilograms of hazardous waste shipments sent out (kg):	5,062 (-11%) (89.6% R3, 10.4% OPP)	5,999 (+18.5%) (83% R3, 17% OPP)	5,400 (-10%) (85% R3 15% OPP)	5,038 (-6.7%) (89% R3, 11% OPP)	4,748 (-5.8%) (88.3% R3 11.7% OPP)	4,446 (-6.4%) (80% R3 20% OPP)
Kilograms of non-hazardous waste shipments sent out (kg) (non- refuse waste):	N/A	161.3 (63% R3, 37% OPP)	217.9 (81% R3, 19% OPP)	67.1 (91% R3, 9% OPP)	106.5 (97.8% R3 2.2 %OPP)	138.5 (80% R3 20% OPP)
Mercury Thermometers recycled (#)	-	-	-	-	-	47
MMBTU/ft ² : (EO 13423 numbers)	385	383 (-0.5%)	396 (+3.3%)	340 (-14.1%)	349 (+2.6%)	344 (-1.4%)

Activity Note: Shaded area indicate change in counting method or value	Quantity/Note					
	FY03	FY04	FY05	FY06	FY07	FY08
Number of cartons of paper purchased in FY (1 carton = 5,000 sheets of paper) (100% post consumer products):	160	170 (+6.0%)	200 (+17.6%)	240 (+20%)	200 (-16.7%)	160 (-20%)
Number of people who started work at ESC during the period:	62	56	36	29	30	32
Number of people who left:	41	39	45	45	36	16
Current staff number onboard ^{##} :	188	205	196	168	161	179
Organizations:	31	30	30	23	25	27
Paper recycled	(bags/bins)	(bags/bins)	(bags/bins)	lbs	lbs	lbs
white paper:	197 (-7.9%)	192 (-2.5%)	212 (+10.4%)	11,183	10,491 ⁺	20,160 ^{!!}
colored paper:	40 (-31%)	42 (+5%)	42	768	1,864 ⁺	2,830 ^{!!}
newspaper:				-	1,545 ⁺	1,570 ^{!!}
magazines:				-	205 ⁺	2,360 ^{!!}
Paper Products Purchased (100% recycled material) (cost)	-	-	-			\$2,144
Paper Towels (cases)				125	135	112
Toilet Paper (cases)				36	20	21
Printer toner (value of recycled toner) (PC/LAN only)	N/A	N/A	\$10,047	\$13,474	\$12,519	\$10,476
Shoes Recycled (lbs)	-	-	-	-	-	117
Transparencies Recycled (lbs)	-	-	-	-	-	5.65
Toner cartridges recycled (copier, fax) (count)	14	20	18	55	26	24
Total amount of water used (gallons):	4,957,000 (-26%)	6,244,000 (+26%)	6,458,000 (+3.4%)	5,604,000 (-13.2%)	5,628,000 (+0.04%)	5,524,000 (-1.8%)
Total recycled materials weight (kg)	-	-	-	-	-	NA ^{!!}
Tyvek [®] Envelopes recycled (lbs)	N/A	N/A	13.56	6	13	12

Activity	Quantity/Note					
Note: Shaded area indicate change in counting method or value	FY03	FY04	FY05	FY06	FY07	FY08
Water usage distribution (%)						
cooling tower:	54.2	45.4	51.4	51.7	49.8	49.4
boiler feed water:	8.2	11.3	12.3	10.5	8.7	5.5
domestic/lab use:	29.9	37.4	30.5	37.6	41.5	45.1
DI RO reject water:	7.7 ^{&}	5.9	5.8	&&	&&	