

Charleston 2005 Baseline Emissions
Ocean Going Vessel Emissions, annual short tons
Total Four Marine Terminals (CS,NC,UP,WT)

		Columbus Street					North Charleston					Union Pier					Wando Welch					Offsite			On-Terminal		Total	
		Cruise	RSZ	Manuv	Hotel	Total	Cruise	RSZ	Manuv	Hotel	Total	Cruise	RSZ	Manuv	Hotel	Total	Cruise	RSZ	Manuv	Hotel	Total	Cruise	Reduced Speed Zone	Maneuvering	Subtotal Offsite	Hotelling	Subtotal On-Terminal	
Container Ships	NOx	0.00	87.29	10.39	85.29	182.97	0.00	195.60	17.92	109.92	323.45	0.00	0.00	0.00	0.00	0.00	0.00	461.50	52.59	330.93	845.01	0.00	744.40	80.90	825.29	526.14	526.14	1351.43
	CO	0.00	8.71	1.23	6.55	16.49	0.00	23.69	2.23	8.43	34.35	0.00	0.00	0.00	0.00	0.00	0.00	50.19	6.31	25.39	81.89	0.00	82.59	9.77	92.36	40.37	40.37	132.73
	HC	0.00	5.83	1.25	2.33	9.41	0.00	21.41	2.37	3.01	26.79	0.00	0.00	0.00	0.00	0.00	0.00	38.30	6.49	9.06	53.86	0.00	65.55	10.12	75.67	14.40	14.40	90.07
	PM10	0.00	6.17	0.87	7.34	14.38	0.00	15.24	1.52	9.29	26.05	0.00	0.00	0.00	0.00	0.00	0.00	33.91	4.39	27.40	65.70	0.00	55.33	6.78	62.10	44.03	44.03	106.13
	PM2.5	0.00	5.53	0.78	6.12	12.43	0.00	13.71	1.37	7.79	22.86	0.00	0.00	0.00	0.00	0.00	0.00	30.47	3.95	22.95	57.37	0.00	49.71	6.10	55.81	36.86	36.86	92.66
	SO2	0.00	51.11	5.05	90.85	147.01	0.00	94.10	7.84	113.33	215.28	0.00	0.00	0.00	0.00	0.00	0.00	251.29	24.34	330.91	606.54	0.00	396.50	37.23	433.73	535.10	535.10	968.83
Barges	NOx	0.00	0.66	0.02	0.17	0.86	0.00	1.14	0.03	0.19	1.36	0.00	0.00	0.00	0.00	0.00	0.00	6.52	0.23	1.73	8.47	0.00	8.31	0.29	8.60	2.09	2.09	10.69
	CO	0.00	0.05	0.00	0.01	0.07	0.00	0.09	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.03	0.13	0.69	0.00	0.68	0.04	0.71	0.16	0.16	0.87
	HC	0.00	0.02	0.00	0.00	0.03	0.00	0.04	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.02	0.05	0.31	0.00	0.31	0.03	0.34	0.06	0.06	0.40
	PM10	0.00	0.05	0.00	0.01	0.07	0.00	0.09	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.02	0.11	0.66	0.00	0.67	0.03	0.70	0.14	0.14	0.84
	PM2.5	0.00	0.05	0.00	0.01	0.06	0.00	0.09	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.02	0.11	0.63	0.00	0.65	0.02	0.67	0.13	0.13	0.80
	SO2	0.00	0.51	0.01	0.09	0.61	0.00	0.87	0.02	0.12	1.01	0.00	0.00	0.00	0.00	0.00	0.00	5.04	0.12	1.05	6.21	0.00	6.42	0.14	6.57	1.27	1.27	7.84
Cruise	NOx	0.00	1.18	0.11	4.59	5.88	0.00	0.00	0.00	0.00	0.00	0.00	16.48	1.66	21.11	39.26	0.00	0.00	0.00	0.00	0.00	0.00	17.66	1.77	19.43	25.70	25.70	45.14
	CO	0.00	0.11	0.01	0.36	0.49	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.21	1.65	3.53	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.22	2.01	2.01	2.01	4.02
	HC	0.00	0.06	0.01	0.13	0.21	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.22	0.58	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.23	1.30	0.71	0.71	2.01
	PM10	0.00	0.07	0.01	0.18	0.25	0.00	0.00	0.00	0.00	0.00	0.00	1.26	0.15	1.99	3.40	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.16	1.48	2.17	2.17	3.65
	PM2.5	0.00	0.05	0.01	0.10	0.16	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.13	1.52	2.76	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.14	1.30	1.62	1.62	2.92
	SO2	0.00	0.52	0.02	1.51	2.05	0.00	0.00	0.00	0.00	0.00	0.00	11.70	1.00	27.96	40.66	0.00	0.00	0.00	0.00	0.00	0.00	12.22	1.03	13.25	29.47	29.47	42.71
Ro-Ro / Vehicle	NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.02	0.15	0.43	0.00	30.74	3.72	30.48	64.95	0.00	0.00	0.00	0.00	0.00	0.00	30.99	3.75	34.74	30.64	30.64	65.38
	CO	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.04	0.00	3.15	0.46	2.32	5.93	0.00	0.00	0.00	0.00	0.00	0.00	3.18	0.46	3.65	2.33	2.33	5.98
	HC	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	1.89	0.49	0.84	3.22	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.50	2.41	0.84	0.84	3.25
	PM10	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.03	0.00	2.10	0.31	2.23	4.64	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.31	2.43	2.24	2.24	4.67
	PM2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.03	0.00	1.91	0.28	1.98	4.16	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.28	2.21	1.99	1.99	4.19
	SO2	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.14	0.28	0.00	17.00	1.48	23.37	41.85	0.00	0.00	0.00	0.00	0.00	0.00	17.14	1.49	18.63	23.51	23.51	42.13
Breakbulk & Other	NOx	0.00	7.71	0.81	5.51	14.03	0.00	1.63	0.10	0.48	2.21	0.00	1.91	0.15	1.09	3.14	0.00	0.00	0.00	0.00	0.00	0.00	11.24	1.06	12.30	7.08	7.08	19.39
	CO	0.00	0.73	0.10	0.42	1.24	0.00	0.17	0.01	0.04	0.22	0.00	0.16	0.02	0.08	0.26	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.13	1.18	0.54	0.54	1.72
	HC	0.00	0.40	0.10	0.15	0.64	0.00	0.13	0.02	0.01	0.15	0.00	0.07	0.02	0.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.13	0.72	0.19	0.19	0.92
	PM10	0.00	0.56	0.07	0.46	1.09	0.00	0.11	0.01	0.04	0.16	0.00	0.12	0.01	0.09	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.09	0.88	0.59	0.59	1.48
	PM2.5	0.00	0.52	0.06	0.39	0.97	0.00	0.10	0.01	0.04	0.15	0.00	0.11	0.01	0.08	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.08	0.81	0.50	0.50	1.32
	SO2	0.00	4.95	0.36	5.53	10.84	0.00	0.81	0.04	0.50	1.34	0.00	1.13	0.07	1.08	2.28	0.00	0.00	0.00	0.00	0.00	0.00	6.89	0.46	7.35	7.11	7.11	14.46
Total	NOx	0.0	96.8	11.3	95.6	203.7	0.0	198.6	18.1	110.7	327.5	0.0	49.1	5.5	52.7	107.4	0.0	468.0	52.8	332.7	853.5	0.0	812.6	87.8	900.4	591.7	591.7	1,492.0
	CO	0.0	9.6	1.3	7.3	18.3	0.0	24.0	2.2	8.5	34.7	0.0	5.0	0.7	4.1	9.7	0.0	50.7	6.3	25.5	82.6	0.0	89.3	10.6	99.9	45.4	45.4	145.3
	HC	0.0	6.3	1.4	2.6	10.3	0.0	21.6	2.4	3.0	27.0	0.0	3.0	0.7	1.4	5.1	0.0	38.5	6.5	9.1	54.2	0.0	69.4	11.0	80.4	16.2	16.2	96.6
	PM10	0.0	6.8	0.9	8.0	15.8	0.0	15.5	1.5	9.4	26.4	0.0	3.5	0.5	4.3	8.3	0.0	34.4	4.4	27.5	66.4	0.0	60.2	7.4	67.6	49.2	49.2	116.8
	PM2.5	0.0	6.2	0.9	6.6	13.6	0.0	13.9	1.4	7.8	23.1	0.0	3.1	0.4	3.6	7.1	0.0	31.0	4.0	23.1	58.0	0.0	54.2	6.6	60.8	41.1	41.1	101.9
	SO2	0.0	57.1	5.4	98.0	160.5	0.0	95.9	7.9	114.1	217.9	0.0	29.8	2.5	52.4	84.8	0.0	256.3	24.5	332.0	612.7	0.0	439.2	40.4	479.5	596.4	596.4	1,076.0

Charleston Ocean Going Vessel Emission calcs, Rolled up by Terminal and Vessel Type

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	Avg # Sailing Tugs	Avg # Docking Tugs	M/E				Aux Avg Aux Installed Power (kW)	Time in Mode (hrs)					M/E Load Factor						A/E Load Factor			
							Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maxium Speed (knts)		Cruise	Outside BW	Inside BW	Maneuver	Hoteling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hoteling	Cruise	Reduced Speed Zone	Maneuver	Hoteling
CS	Container	251	726	18	1.7	1.8	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%
	Barge	5	343	17	2.0	2.0	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%
	Cruise	1	895	46	2.0	2.0	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%
	Ro-Ro	0																								
	Breakbulk	42	567	27	1.7	1.6	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%
NC	Container	350	799	15	1.6	1.6	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%
	Barge	7	343	13	2.0	1.9	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%
	Cruise	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Ro-Ro	1	623	13	1.0	1.0	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%
	Breakbulk	4	790	25	2.0	2.3	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%
UP	Container	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Barge	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Cruise	46	610	21	2.0	2.0	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%
	Ro-Ro	170	619	15	1.5	1.6	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%
	Breakbulk	9	587	29	1.8	1.8	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%
WT	Container	1082	799	14	1.7	1.7	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%
	Barge	46	343	18	1.7	1.7	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%
	Cruise	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Ro-Ro	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Breakbulk	0	0	0	0.0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	Container	1,683	788	15	1.7	1.7	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%
	Tug & Barge	58	343	17	1.8	1.7	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%
	Cruise	47	616	22	2.0	2.0	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%
	Ro-Ro	171	619	15	1.5	1.6	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%
	Breakbulk & Other	55	587	27	1.7	1.7	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%
	Total	2,014	751	15	1.7	1.7	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%

Charleston Ocean Going Ves

Terminal	Vessel Type	Main Engine Emission Factors (RO - 2.7% S) g/kw-hr						Aux Engine Emission Factors g/kw-hr						M/E Emissions (lbs) - Cruising						M/E Emissions (lbs) - Reduced Speed Zone-1						
		Nox lbs	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox
CS	Container	18.05	1.40	0.60	1.08	0.99	10.31	14.50	1.10	0.40	0.96	0.89	8.86	0	0	0	0	0	0	106,657	8,304	3,578	6,391	5,861	60,791	43,687
	Barge	14.00	1.10	0.50	1.14	1.10	11.10	14.38	1.10	0.40	0.85	0.75	7.48	0	0	0	0	0	0	952	75	34	77	75	755	280
	Cruise	18.10	1.40	0.60	1.08	0.99	10.30	13.90	1.10	0.40	0.42	0.23	2.05	0	0	0	0	0	0	1,067	83	35	64	58	607	487
	Ro-Ro																									
	Breakbulk	15.85	1.24	0.55	1.11	1.05	10.74	14.51	1.10	0.40	0.97	0.89	8.95	0	0	0	0	0	0	9,046	715	318	618	581	5,916	3,663
NC	Container	18.10	1.40	0.60	1.08	0.99	10.30	14.50	1.10	0.40	0.96	0.88	8.85	0	0	0	0	0	0	159,052	12,762	5,602	9,563	8,766	89,822	177,297
	Barge	14.00	1.10	0.50	1.14	1.10	11.10	14.47	1.10	0.40	0.93	0.85	8.51	0	0	0	0	0	0	1,332	105	48	108	105	1,056	764
	Cruise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	18.10	1.40	0.60	1.08	0.99	10.30	14.70	1.10	0.40	1.14	1.10	11.10	0	0	0	0	0	0	211	17	7	13	12	119	212
	Breakbulk	18.10	1.40	0.60	1.08	0.99	10.30	14.50	1.10	0.40	0.96	0.88	8.84	0	0	0	0	0	0	1,569	146	77	98	90	836	1,313
UP	Container	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	Barge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cruise	17.48	1.35	0.58	1.09	1.01	10.42	14.49	1.10	0.40	0.95	0.87	8.74	0	0	0	0	0	0	13,843	1,274	623	864	794	7,599	6,796
	Ro-Ro	17.91	1.39	0.60	1.08	1.00	10.34	14.50	1.10	0.40	0.96	0.89	8.86	0	0	0	0	0	0	36,092	2,932	1,302	2,201	2,023	20,571	16,107
	Breakbulk	18.10	1.40	0.60	1.08	0.99	10.30	12.89	0.98	0.36	0.85	0.78	7.86	0	0	0	0	0	0	2,572	199	85	153	141	1,463	749
WT	Container	17.99	1.39	0.60	1.08	0.99	10.32	14.50	1.10	0.40	0.96	0.88	8.83	0	0	0	0	0	0	483,824	37,803	16,335	29,077	26,681	276,206	303,523
	Barge	14.00	1.10	0.50	1.14	1.10	11.10	14.49	1.10	0.40	0.95	0.87	8.74	0	0	0	0	0	0	8,755	688	313	713	688	6,941	3,356
	Cruise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
	Breakbulk	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Container	18.02	1.39	0.60	1.08	0.99	10.31	14.50	1.10	0.40	0.96	0.88	8.84	0	0	0	0	0	0	749,533	58,870	25,515	45,030	41,308	426,819	524,507
	Tug & Barge	14.00	1.10	0.50	1.14	1.10	11.10	14.48	1.10	0.40	0.94	0.86	8.60	0	0	0	0	0	0	11,039	867	394	899	867	8,752	4,400
	Cruise	17.49	1.36	0.59	1.09	1.01	10.42	14.48	1.10	0.40	0.94	0.86	8.60	0	0	0	0	0	0	14,910	1,357	658	928	852	8,206	7,283
	Ro-Ro	17.91	1.39	0.60	1.08	1.00	10.34	14.50	1.10	0.40	0.96	0.89	8.88	0	0	0	0	0	0	36,303	2,949	1,309	2,214	2,034	20,690	16,320
	Breakbulk & Other	16.35	1.27	0.56	1.11	1.04	10.64	14.24	1.08	0.39	0.95	0.87	8.76	0	0	0	0	0	0	13,186	1,060	480	870	811	8,215	5,724
	Total	17.84	1.38	0.59	1.08	1.00	10.35	14.49	1.10	0.40	0.96	0.88	8.83	0	0	0	0	0	0	824,971	65,103	28,356	49,940	45,873	472,683	558,233

Charleston Ocean Going Ves

Terminal	Vessel Type	M/E Emissions (lbs) - Reduced Speed Zone-2					M/E Emissions (lbs) - Maneuvering					M/E Emissions (lbs) - Hotelling					A/E Emissions (lbs) - Cruising						A/E Emiss				
		CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	
CS	Container	7,250	7,423	3,673	3,368	11,106	9,726	1,625	2,202	915	839	1,197	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	22,091	1,676
	Barge	25	12	23	23	215	28	5	4	3	3	12	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	87	7
	Cruise	78	61	37	34	173	117	20	27	11	10	14	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	782	62
	Ro-Ro																										
	Breakbulk	531	398	297	278	1,689	739	124	171	77	72	102	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	2,620	199
NC	Container	30,393	35,728	15,874	14,551	31,988	18,917	3,160	4,283	1,777	1,629	2,325	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	50,296	3,815
	Barge	69	34	64	62	588	39	7	6	4	4	17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	179	14
	Cruise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	36	31	17	15	66	24	4	5	2	2	3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	82	6
	Breakbulk	168	166	100	92	465	124	21	28	12	11	15	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	366	28
UP	Container	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Barge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cruise	1,139	1,054	554	508	1,977	1,722	288	389	162	149	214	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	11,497	870
	Ro-Ro	2,662	2,224	1,274	1,170	5,352	3,921	655	889	372	342	487	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	8,946	679
	Breakbulk	80	45	48	44	381	132	22	30	12	11	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	477	36
WT	Container	52,118	56,574	26,427	24,238	65,791	50,697	8,471	11,486	4,780	4,384	6,255	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	124,819	9,469
	Barge	302	149	281	271	2,583	257	44	40	28	27	111	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	924	70
	Cruise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Breakbulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Container	89,762	99,724	45,974	42,157	108,885	79,340	13,256	17,971	7,472	6,852	9,777	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	197,205	14,959
	Tug & Barge	396	195	369	356	3,387	324	56	51	35	34	141	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	1,190	90
	Cruise	1,218	1,115	591	542	2,150	1,839	307	416	173	159	228	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	12,279	932
	Ro-Ro	2,697	2,254	1,290	1,185	5,418	3,945	659	895	374	344	490	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	9,028	685
	Breakbulk & Other	780	609	445	414	2,535	995	167	229	101	94	133	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	3,463	263
	Total	94,854	103,899	48,670	44,654	122,374	86,443	14,445	19,561	8,155	7,483	10,768	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	0	0	0	0	0	0	0	223,164	16,929

Charleston Ocean Going Ves

Terminal	Vessel Type	Emissions (lbs) - Reduced Speed Zone				A/E Emissions (lbs) - Maneuvering						A/E Emissions (lbs) - Hotelling						Boiler Emissions (lbs) - Reduced Speed Zone						Boiler Emissions (lbs) - Hotelling		
		HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Nox	CO	HC	PM10	PM2.5	SO2	Boiler Energy (kW)	Nox	CO	HC	PM10	PM2.5	SO2	Boiler Energy (kW)	Nox
CS	Container	609	1,466	1,348	13,504	10,750	815	297	713	656	6,573	159,976	12,126	4,410	10,700	9,870	98,895	506	2,155	196	51	808	483	16,819	506	298
	Barge	2	5	5	45	21	2	1	1	1	11	349	27	10	21	18	184	0	0	0	0	0	0	0	0	0
	Cruise	22	24	13	115	97	8	3	3	2	14	8,964	709	258	271	148	1,322	1,000	19	2	0	7	4	147	1,000	2
	Ro-Ro																									
	Breakbulk	72	175	161	1,615	862	65	24	58	53	531	10,444	791	288	702	648	6,496	109	86	8	2	32	19	675	109	11
NC	Container	1,387	3,340	3,073	30,780	16,517	1,253	456	1,098	1,010	10,118	207,140	15,705	5,711	13,816	12,733	127,558	177,100	4,563	415	109	1,712	1,022	35,617	177,100	416
	Barge	5	12	11	105	30	2	1	2	2	18	373	28	10	26	24	242	0	0	0	0	0	0	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	2	6	6	62	21	2	1	2	2	16	300	22	8	23	22	227	109	3	0	0	1	1	24	109	0
	Breakbulk	10	24	22	223	82	6	2	5	5	50	912	69	25	63	59	596	436	12	1	0	5	3	94	436	1
UP	Container	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Barge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cruise	316	786	731	7,331	1,493	113	41	102	95	952	37,619	2,875	1,045	2,257	2,002	19,933	46,000	831	76	20	312	186	6,488	46,000	108
	Ro-Ro	247	593	546	5,468	3,485	264	96	231	213	2,130	59,678	4,525	1,645	3,975	3,661	36,679	18,530	335	30	8	126	75	2,613	18,530	43
	Breakbulk	13	32	29	291	164	12	5	11	10	100	2,061	156	57	137	126	1,260	872	16	1	0	6	4	123	872	2
WT	Container	3,443	8,261	7,593	76,038	53,191	4,035	1,467	3,520	3,235	32,396	625,465	47,473	17,263	41,146	37,741	377,814	547,492	10,830	985	258	4,064	2,426	84,537	547,492	1,285
	Barge	26	61	56	557	198	15	5	13	12	120	3,456	262	95	229	211	2,109	0	0	0	0	0	0	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ro-Ro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Breakbulk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Container	5,440	13,066	12,015	120,323	80,458	6,103	2,219	5,331	4,902	49,087	992,581	75,304	27,383	65,662	60,344	604,267	851,598	17,548	1,595	417	6,584	3,931	136,973	851,598	1,998
	Tug & Barge	33	77	71	708	250	19	7	16	15	149	4,179	317	115	276	253	2,536	0	0	0	0	0	0	0	0	0
	Cruise	339	810	744	7,446	1,590	121	44	105	97	966	46,582	3,584	1,303	2,528	2,151	21,255	47,000	850	77	20	319	190	6,635	47,000	110
	Ro-Ro	249	600	552	5,530	3,506	266	97	233	214	2,146	59,978	4,548	1,654	3,998	3,684	36,905	18,639	338	31	8	127	76	2,637	18,639	44
	Breakbulk & Other	95	231	213	2,129	1,108	84	31	74	68	681	13,417	1,017	370	902	833	8,352	5,886	114	10	3	43	26	892	5,886	14
	Total	6,156	14,784	13,594	136,135	86,912	6,593	2,397	5,759	5,295	53,029	1,116,736	84,770	30,825	73,366	67,265	673,315	923,123	18,851	1,714	448	7,073	4,223	147,138	923,123	2,166

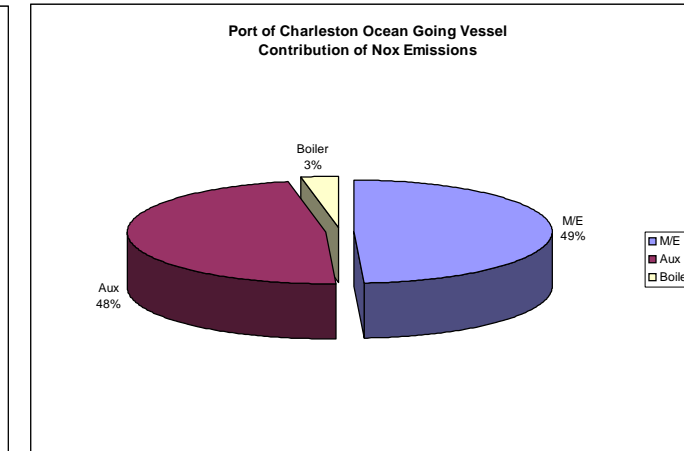
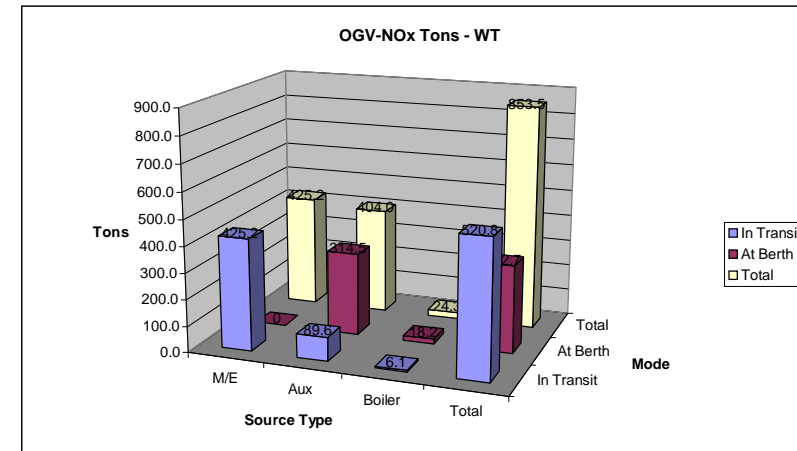
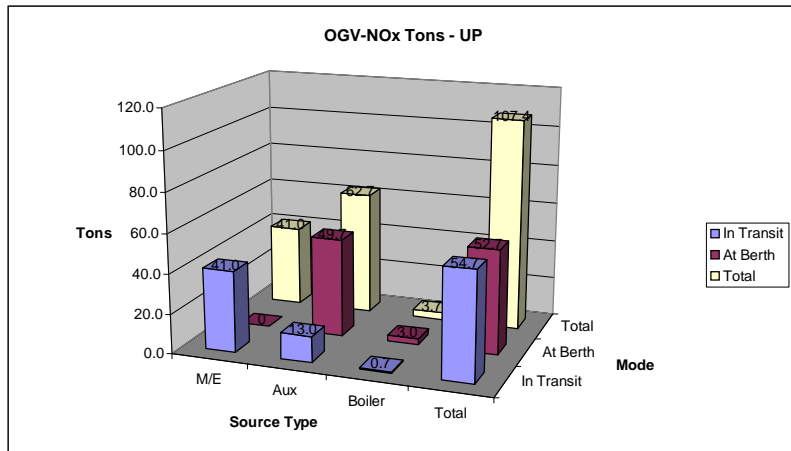
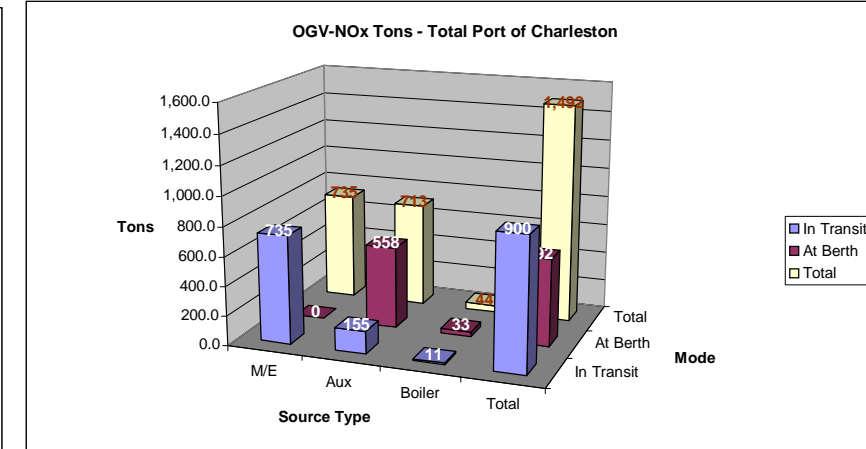
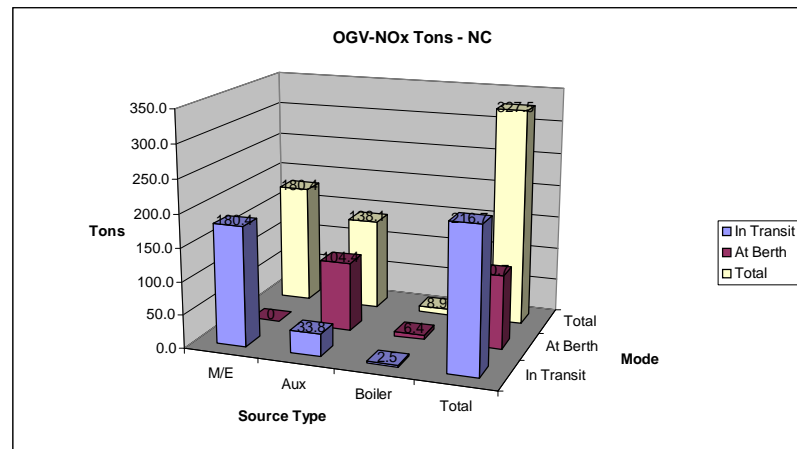
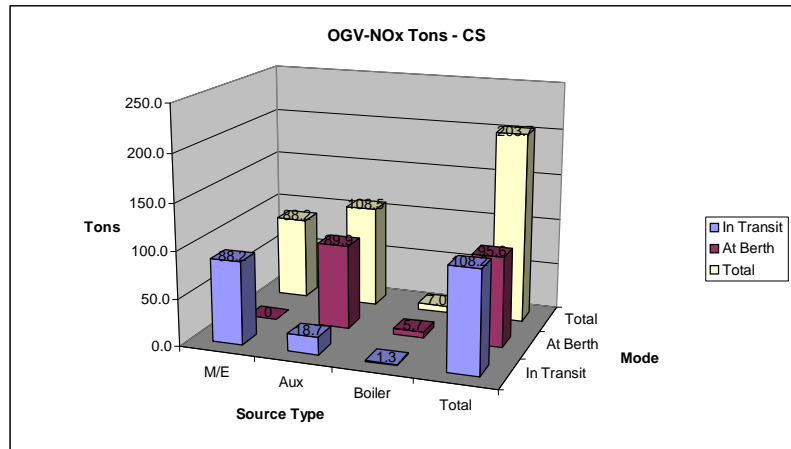
Charleston Ocean Going Ves

Terminal	Vessel Type	Boiler Emissions (lbs) - Manuevering					Boiler Emissions (lbs) - Hotelling						
		CO	HC	PM10	PM2.5	SO2	Boiler Energy (kW)	Nox	CO	HC	PM10	PM2.5	SO2
CS	Container	27	7	112	67	2,326	506	10,610	965	252	3,981	2,377	82,814
	Barge	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	0	0	1	1	18	1,000	217	20	5	81	49	1,691
	Ro-Ro												
	Breakbulk	1	0	4	2	84	109	586	53	14	220	131	4,572
NC	Container	38	10	156	93	3,244	177,100	12,697	1,154	302	4,764	2,844	99,104
	Barge	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	0	0	0	0	0	0	0	0	0	0	0	
	Ro-Ro	0	0	0	0	2	109	6	1	0	2	1	50
	Breakbulk	0	0	0	0	8	436	51	5	1	19	11	398
UP	Container	0	0	0	0	0	0	0	0	0	0	0	
	Barge	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	10	3	40	24	843	46,000	4,610	419	110	1,730	1,033	35,987
	Ro-Ro	4	1	16	10	339	18,530	1,288	117	31	483	289	10,055
	Breakbulk	0	0	1	0	16	872	116	11	3	43	26	903
WT	Container	117	31	482	288	10,028	547,492	36,386	3,308	866	13,652	8,150	284,005
	Barge	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	0	0	0	0	0	0	0	0	0	0	0	
	Ro-Ro	0	0	0	0	0	0	0	0	0	0	0	
	Breakbulk	0	0	0	0	0	0	0	0	0	0	0	
Total	Container	182	48	750	448	15,598	851,598	59,692	5,427	1,420	22,396	13,371	465,923
	Tug & Barge	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	10	3	41	25	861	47,000	4,827	439	115	1,811	1,081	37,678
	Ro-Ro	4	1	16	10	341	18,639	1,295	118	31	486	290	10,105
	Breakbulk & Other	1	0	5	3	108	5,886	752	68	18	282	169	5,873
	Total	197	52	813	485	16,908	923,123	66,566	6,051	1,583	24,975	14,911	519,579

Tons						
Nox	CO	HC	PM10	PM2.5	SO2	
183.0	16.5	9.4	14.4	12.4	147.0	
0.9	0.1	0.0	0.1	0.1	0.6	
5.9	0.5	0.2	0.2	0.2	2.1	
0.0	0.0	0.0	0.0	0.0	0.0	
14.0	1.2	0.6	1.1	1.0	10.8	
203.7	18.3	10.3	15.8	13.6	160.5	422.3
323.4	34.3	26.8	26.0	22.9	215.3	
1.4	0.1	0.1	0.1	0.1	1.0	
0.0	0.0	0.0	0.0	0.0	0.0	
0.4	0.0	0.0	0.0	0.0	0.3	
2.2	0.2	0.2	0.2	0.1	1.3	
327.5	34.7	27.0	26.4	23.1	217.9	656.6
0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	
39.3	3.5	1.8	3.4	2.8	40.7	
64.9	5.9	3.2	4.6	4.2	41.8	
3.1	0.3	0.1	0.2	0.2	2.3	
107.4	9.7	5.1	8.3	7.1	84.8	222.4
845.0	81.9	53.9	65.7	57.4	606.5	
8.5	0.7	0.3	0.7	0.6	6.2	
0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	
853.5	82.6	54.2	66.4	58.0	612.7	1,727.4
1,351.4	132.7	90.1	106.1	92.7	968.8	
10.7	0.9	0.4	0.8	0.8	7.8	
45.1	4.0	2.0	3.7	2.9	42.7	
65.4	6.0	3.2	4.7	4.2	42.1	
19.4	1.7	0.9	1.5	1.3	14.5	
1,492.0	145.3	96.6	116.8	101.9	1,076.0	3,028.6

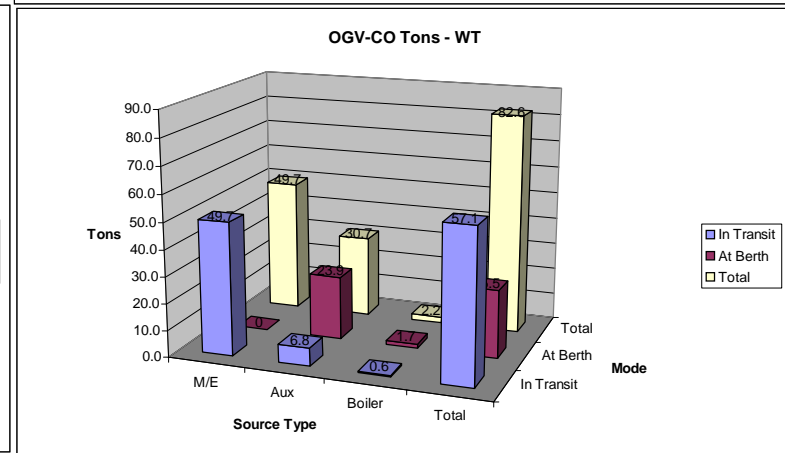
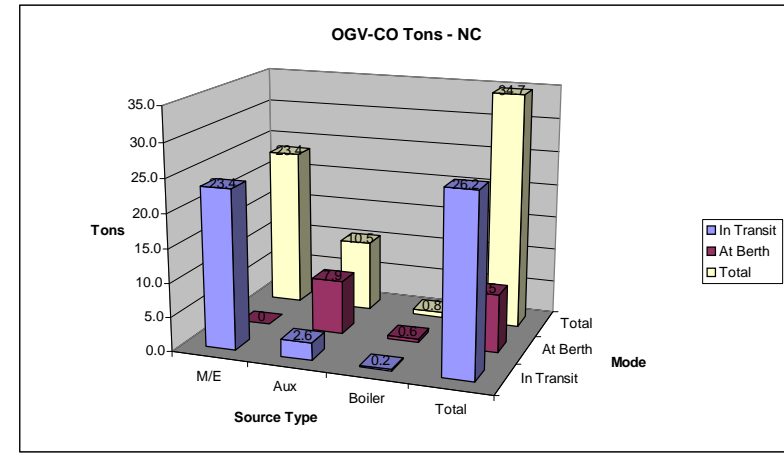
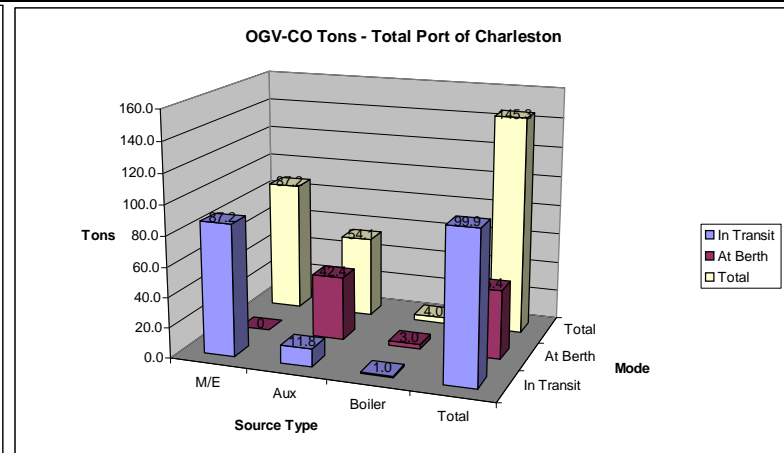
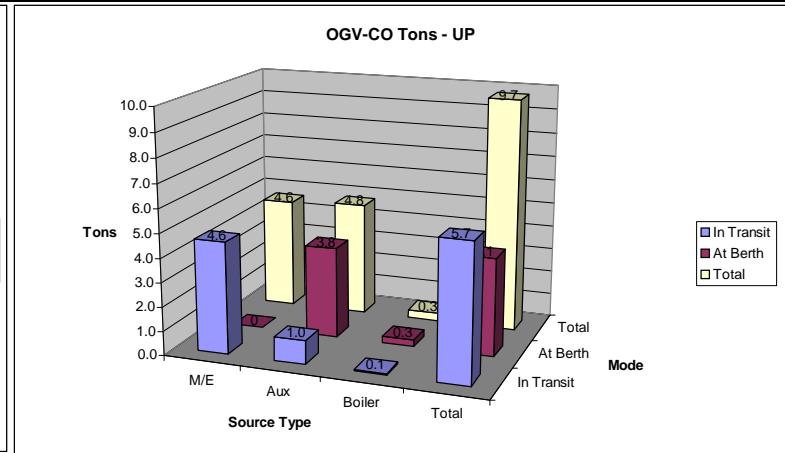
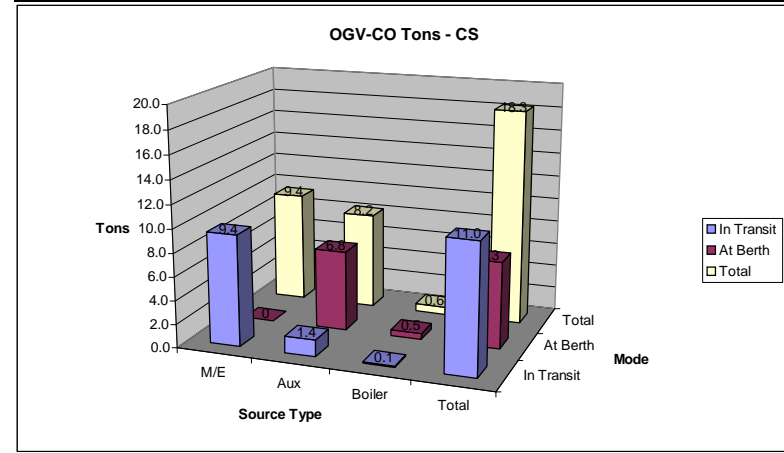
OGV- NOX

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Aux Avg Aux Installed Power (kW)	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr	Aux Engine Emission Factors g/kw-hr	M/E Emissions (lbs) - Reduced Speed Zone-1		M/E Emissions (lbs) - Reduced Speed Zone-2		M/E Emissions (lbs) - Maneuvering		M/E Emissions (lbs) - Hotelling		A/E Emissions (lbs) - Reduced Speed Zone		A/E Emissions (lbs) - Maneuvering		A/E Emissions (lbs) - Hotelling		Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maximum Speed (kts)		Cruise	Outside BW	Inside BW	Maneuver	Hotelling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hotelling	Cruise	Reduced Speed Zone	Maneuver			Hotelling	Nox lbs	Nox	Nox	Nox	Nox	Nox	Nox	Nox	Nox	Nox	Nox	Nox	Nox			
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	18.05	14.50	0	106,657	43,687	9,726	#N/A	0	22,091	10,750	159,976	2,155	298	10,610				
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	14.00	14.38	0	952	280	28	#N/A	0	87	21	349	0	0	0				
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%	18.10	13.90	0	1,067	487	117	#N/A	0	782	97	8,964	19	2	217				
	Ro-Ro	0																																								
	Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	15.85	14.51	0	9,046	3,663	739	#N/A	0	2,620	862	10,444	86	11	586				
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	18.10	14.50	0	159,052	177,297	18,917	#N/A	0	50,296	16,517	207,140	4,563	416	12,697				
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	14.00	14.47	0	1,332	764	39	#N/A	0	179	30	373	0	0	0				
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0					
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	18.10	14.70	0	211	212	24	#N/A	0	82	21	300	3	0	6				
	Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	18.10	14.50	0	1,569	1,313	124	#N/A	0	366	82	912	12	1	51				
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0					
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0					
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	17.48	14.49	0	13,843	6,796	1,722	#N/A	0	11,497	1,493	37,619	831	108	4,610				
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	17.91	14.50	0	36,092	16,107	3,921	#N/A	0	8,946	3,485	59,678	335	43	1,288				
	Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	18.10	12.89	0	2,572	749	132	#N/A	0	477	164	2,061	16	2	116				
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	17.99	14.50	0	483,824	303,523	50,697	#N/A	0	124,819	53,191	625,465	10,830	1,285	36,386				
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	14.00	14.49	0	8,755	3,356	257	#N/A	0	924	198	3,456	0	0	0				
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0						
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0						
	Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0						
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	18.02	14.50	0	749,533	524,507	79,340	#N/A	0	197,205	80,458	992,581	17,548	1,998	59,692				
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	14.00	14.48	0	11,039	4,400	324	#N/A	0	1,190	250	4,179	0	0	0				
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	17.49	14.48	0	14,910	7,283	1,839	#N/A	0	12,279	1,590	46,582	850	110	4,827				
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	17.91	14.50	0	36,303	16,320	3,945	#N/A	0	9,028	3,506	59,978	338	44	1,295				
	Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	16.35	14.24	0	13,186	5,724	995	#N/A	0	3,463	1,108	13,417	114	14	752				
	Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	17.84	14.49	0	824,971	558,233	86,443	#N/A	0	223,164	86,912	1,116,736	18,851	2,166	66,566				



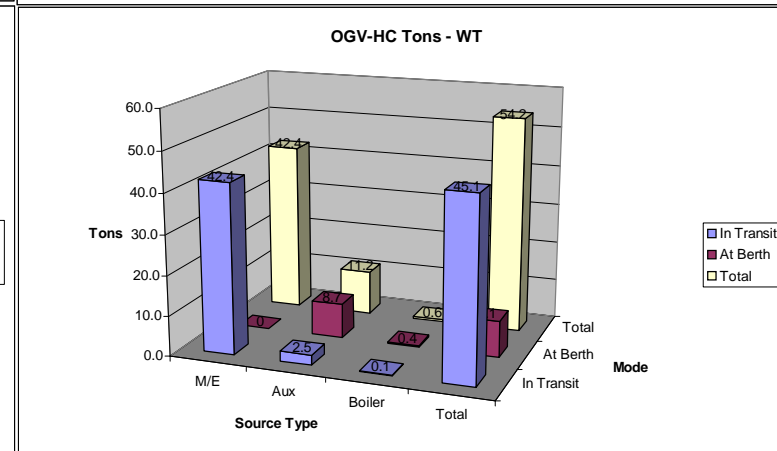
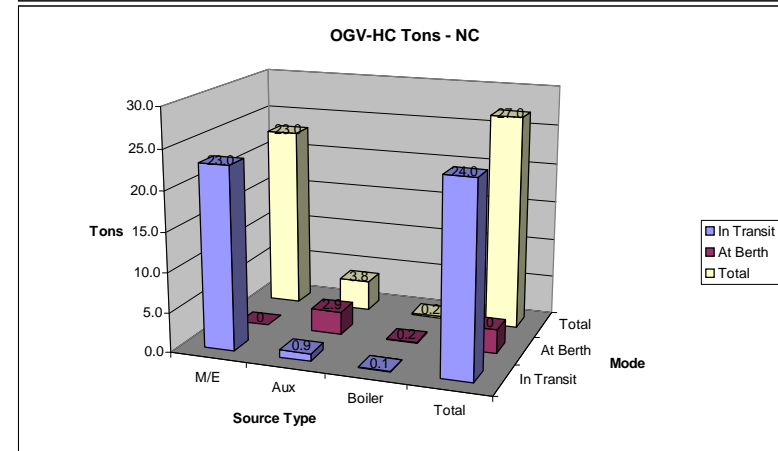
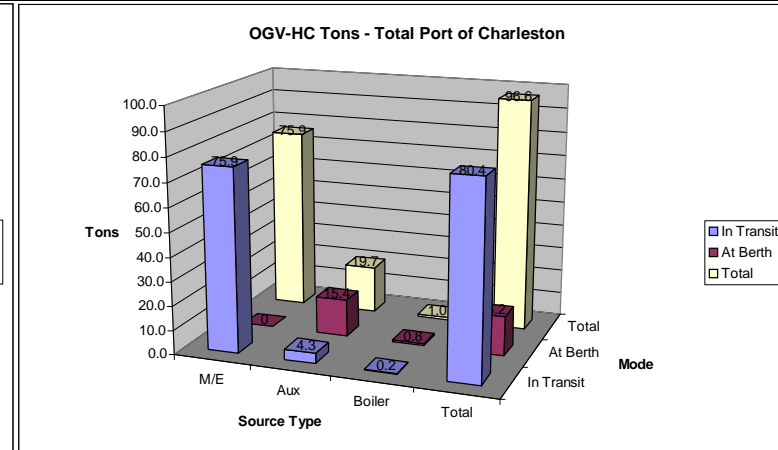
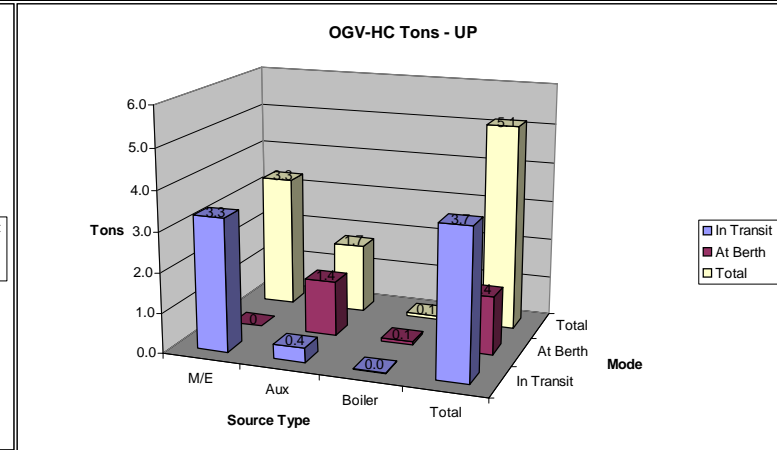
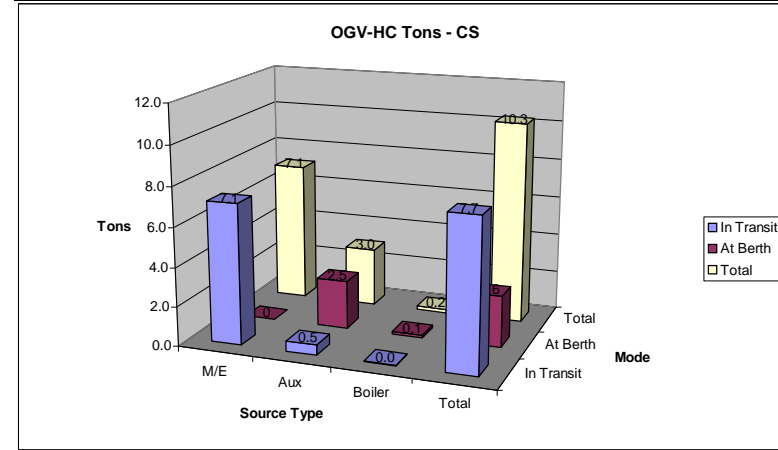
OGV- CO

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Avg Aux Installed Power (kW)	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr		Aux Engine Emission Factors g/kw-hr		M/E Emissions (lbs) - Reduced Speed Zone-1		M/E Emissions (lbs) - Reduced Speed Zone-2		M/E Emissions (lbs) - Maneuvering		M/E Emissions (lbs) - Hotelling		A/E Emissions (lbs) - Cruising		A/E Emissions (lbs) - Reduced Speed Zone		A/E Emissions (lbs) - Maneuvering		A/E Emissions (lbs) - Hotelling		Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maxium Speed (knts)		Cruise	Outside BW	Inside BW	Maneuver	Hotelling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hotelling	Cruise	Reduced Speed Zone	Maneuver	Hotelling	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO	
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	1.40	1.10	0	8,304	7,250	1,625	#N/A	0	1,676	815	12,126	196	27	965								
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	1.10	0	75	25	5	#N/A	0	7	2	27	0	0	0								
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%	1.40	1.10	0	83	78	20	#N/A	0	62	8	709	2	0	20								
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0								
	Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	1.24	1.10	0	715	531	124	#N/A	0	199	65	791	8	1	53								
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	1.40	1.10	0	12,762	30,393	3,160	#N/A	0	3,815	1,253	15,705	415	38	1,154								
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	1.10	0	105	69	7	#N/A	0	14	2	28	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0									
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	1.40	1.10	0	17	36	4	#N/A	0	6	2	22	0	0	1								
	Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	1.40	1.10	0	146	168	21	#N/A	0	28	6	69	1	0	5								
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0								
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0								
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	1.35	1.10	0	1,274	1,139	288	#N/A	0	870	113	2,875	76	10	419								
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.39	1.10	0	2,932	2,662	655	#N/A	0	679	264	4,525	30	4	117								
	Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	1.40	0.98	0	199	80	22	#N/A	0	36	12	156	1	0	11								
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	1.39	1.10	0	37,803	52,118	8,471	#N/A	0	9,469	4,035	47,473	985	117	3,308								
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	1.10	0	688	302	44	#N/A	0	70	15	262	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0									
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0									
	Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0									
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	1.39	1.10	0	58,870	89,762	13,256	#N/A	0	14,959	6,103	75,304	1,595	182	5,427								
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	1.10	0	867	396	56	#N/A	0	90	19	317	0	0	0								
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	1.36	1.10	0	1,357	1,218	307	#N/A	0	932	121	3,584	77	10	439								
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.39	1.10	0	2,949	2,697	659	#N/A	0	685	266	4,548	31	4	118								
	Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	1.27	1.08	0	1,060	780	167	#N/A	0	263	84	1,017	10	1	68								
Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	1.38	1.10	0	65,103	94,854	14,445	#N/A	0	16,929	6,593	84,770	1,714	197	6,051									



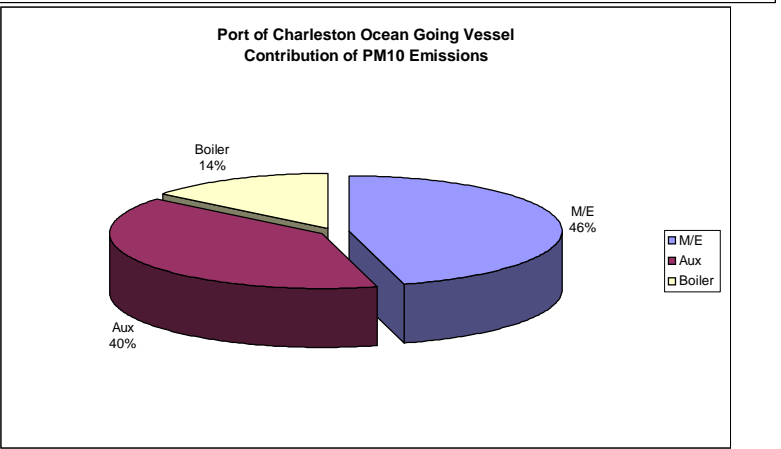
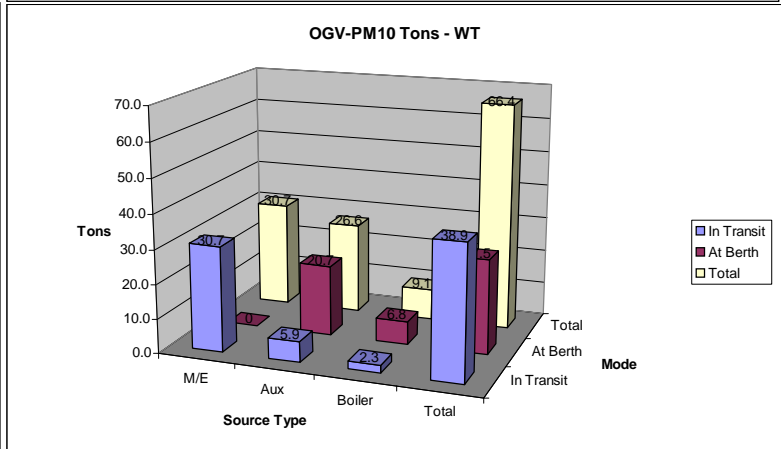
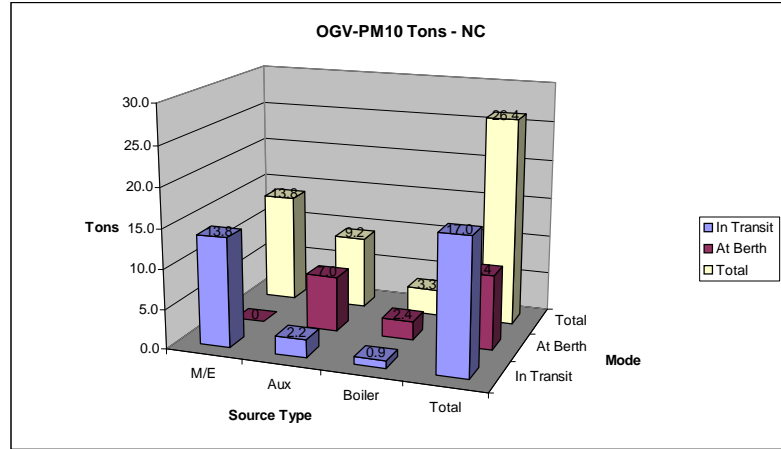
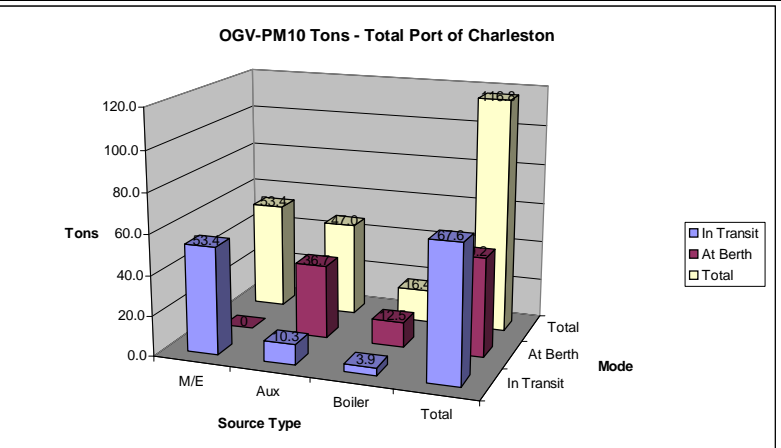
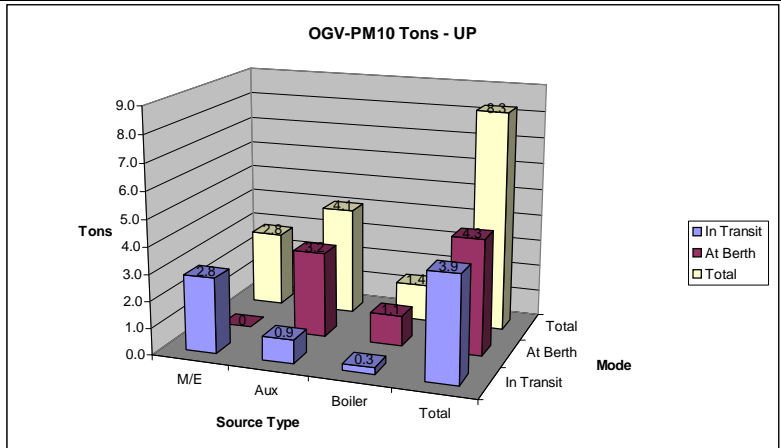
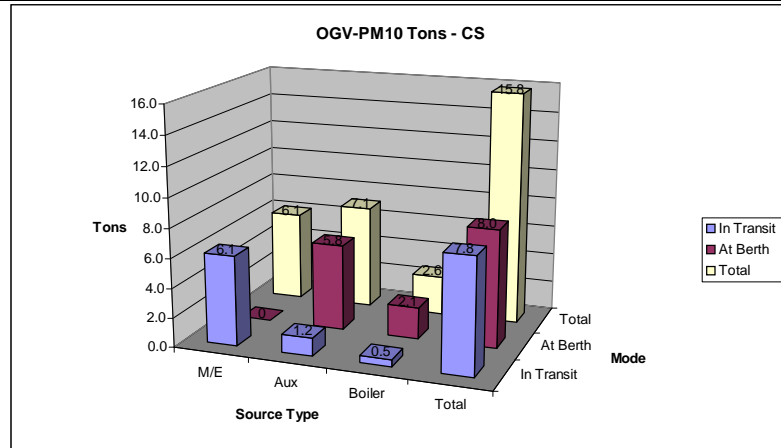
OGV- HC

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Aux	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr	Aux Engine Emission Factors g/kw-hr	M/E Emissions (lbs) - Cruising	M/E Emissions (lbs) - Reduced Speed Zone-1	M/E Emissions (lbs) - Reduced Speed Zone-2	M/E Emissions (lbs) - Maneuvering	M/E Emissions (lbs) - Hotelling	A/E Emissions (lbs) - Cruising	A/E Emissions (lbs) - Reduced Speed Zone	A/E Emissions (lbs) - Maneuvering	A/E Emissions (lbs) - Hotelling	Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling	
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maxium Speed (knts)		Avg Aux Installed Power (kW)	Cruise	Outside BW	Inside BW	Maneuver	Hotelling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hotelling	Cruise	Reduced Speed Zone															Maneuver
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	0.60	0.40	0	3,578	7,423	2,202	#N/A	0	609	297	4,410	51	7	252
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	0.50	0.40	0	34	12	4	#N/A	0	2	1	10	0	0	0
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%	0.60	0.40	0	35	61	27	#N/A	0	22	3	258	0	0	5
	Ro-Ro	0																																				
	Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	0.55	0.40	0	318	398	171	#N/A	0	72	24	288	2	0	14
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	0.60	0.40	0	5,602	35,728	4,283	#N/A	0	1,387	456	5,711	109	10	302
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	0.50	0.40	0	48	34	6	#N/A	0	5	1	10	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	0.60	0.40	0	7	31	5	#N/A	0	2	1	8	0	0	0
	Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	0.60	0.40	0	77	166	28	#N/A	0	10	2	25	0	0	1
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	0.58	0.40	0	623	1,054	389	#N/A	0	316	41	1,045	20	3	110
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	0.60	0.40	0	1,302	2,224	889	#N/A	0	247	96	1,645	8	1	31
	Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	0.60	0.36	0	85	45	30	#N/A	0	13	5	57	0	0	3
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	0.60	0.40	0	16,335	56,574	11,486	#N/A	0	3,443	1,467	17,263	258	31	866
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	0.50	0.40	0	313	149	40	#N/A	0	26	5	95	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0		
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0		
	Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0		
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	0.60	0.40	0	25,515	99,724	17,971	#N/A	0	5,440	2,219	27,383	417	48	1,420
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	0.50	0.40	0	394	195	51	#N/A	0	33	7	115	0	0	0
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	0.59	0.40	0	658	1,115	416	#N/A	0	339	44	1,303	20	3	115
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	0.60	0.40	0	1,309	2,254	895	#N/A	0	249	97	1,654	8	1	31
	Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	0.56	0.39	0	480	609	229	#N/A	0	95	31	370	3	0	18
Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	0.59	0.40	0	28,356	103,899	19,561	#N/A	0	6,156	2,397	30,825	448	52	1,583	



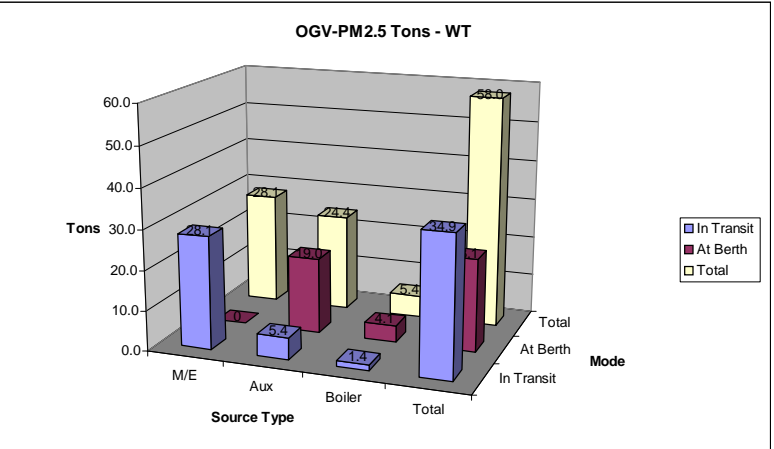
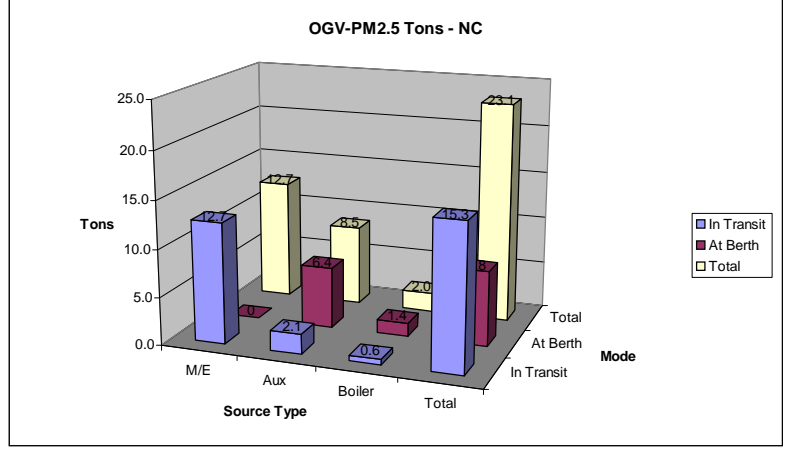
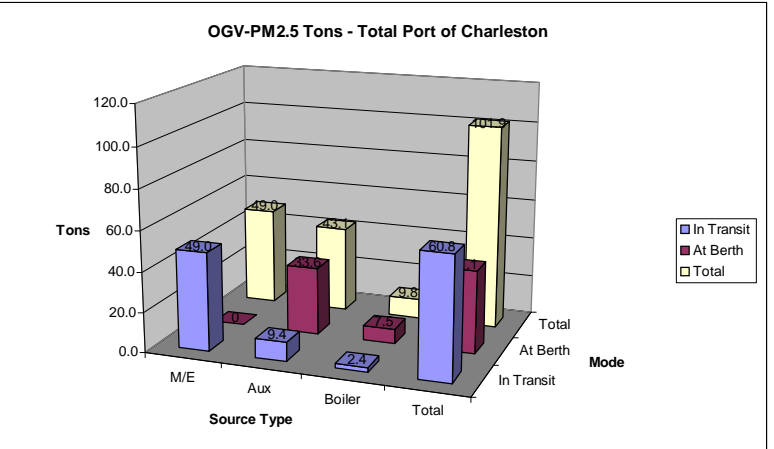
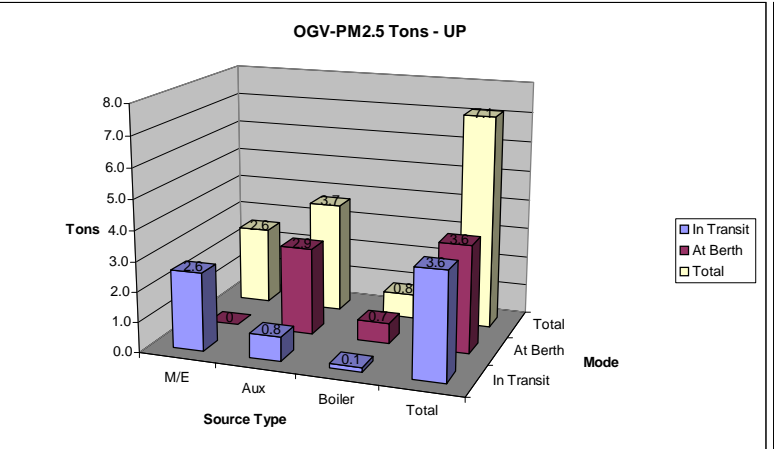
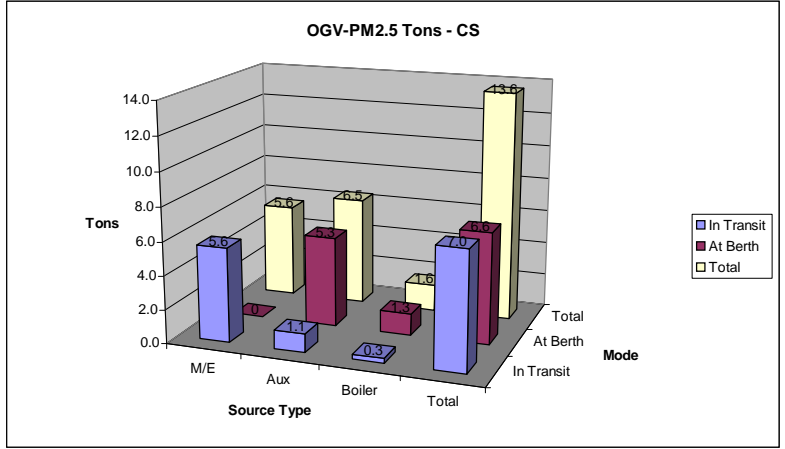
OGV- PM10

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Aux	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr		Aux Engine Emission Factors g/kw-hr		M/E Emissions (lbs) - Reduced Speed Zone-1		M/E Emissions (lbs) - Reduced Speed Zone-2		M/E Emissions (lbs) - Maneuvering		M/E Emissions (lbs) - Hotelling		A/E Emissions (lbs) - Cruising		A/E Emissions (lbs) - Reduced Speed Zone		A/E Emissions (lbs) - Maneuvering		A/E Emissions (lbs) - Hotelling		Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maximum Speed (knts)		Cruise	Outside BW	Inside BW	Maneuver	Hotelling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculate d Maneuver LF	Applied Maneuver LF	Hotelling	Cruise	Reduced Speed Zone	Maneuver	Hotelling	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10	PM10		
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	1.08	0.96	0	6,391	3,673	915	#N/A	0	1,466	713	10,700	808	112	3,981								
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.14	0.85	0	77	23	3	#N/A	0	5	1	21	0	0	0								
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%	1.08	0.42	0	64	37	11	#N/A	0	24	3	271	7	1	81								
	Ro-Ro	0																																												
	Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	1.11	0.97	0	618	297	77	#N/A	0	175	58	702	32	4	220								
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	1.08	0.96	0	9,563	15,874	1,777	#N/A	0	3,340	1,098	13,816	1,712	156	4,764								
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.14	0.93	0	108	64	4	#N/A	0	12	2	26	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0								
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	1.08	1.14	0	13	17	2	#N/A	0	6	2	23	1	0	2								
	Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	1.08	0.96	0	98	100	12	#N/A	0	24	5	63	5	0	19								
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0								
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0								
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	1.09	0.95	0	864	554	162	#N/A	0	786	102	2,257	312	40	1,730								
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.08	0.96	0	2,201	1,274	372	#N/A	0	593	231	3,975	126	16	483								
	Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	1.08	0.85	0	153	48	12	#N/A	0	32	11	137	6	1	43								
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	1.08	0.96	0	29,077	26,427	4,780	#N/A	0	8,261	3,520	41,146	4,064	482	13,652								
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.14	0.95	0	713	281	28	#N/A	0	61	13	229	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0									
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0									
	Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0									
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	1.08	0.96	0	45,030	45,974	7,472	#N/A	0	13,066	5,331	65,662	6,584	750	22,396								
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.14	0.94	0	899	369	35	#N/A	0	77	16	276	0	0	0								
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	1.09	0.94	0	928	591	173	#N/A	0	810	105	2,528	319	41	1,811								
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.08	0.96	0	2,214	1,290	374	#N/A	0	600	233	3,998	127	16	486								
	Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	1.11	0.95	0	870	445	101	#N/A	0	231	74	902	43	5	282								
Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	1.08	0.96	0	49,940	48,670	8,155	#N/A	0	14,784	5,759	73,366	7,073	813	24,975									



OGV-PM2.5

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Aux Avg Aux Installed Power (kW)	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr	Aux Engine Emission Factors g/kw-hr	M/E Emissions (lbs) - Cruising	M/E Emissions (lbs) - Reduced Speed Zone-1	M/E Emissions (lbs) - Reduced Speed Zone-2	M/E Emissions (lbs) - Maneuvering	M/E Emissions (lbs) - Hotelling	A/E Emissions (lbs) - Cruising	A/E Emissions (lbs) - Reduced Speed Zone	A/E Emissions (lbs) - Maneuvering	A/E Emissions (lbs) - Hotelling	Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling	
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maxium Speed (knts)		Cruise	Outside BW	Inside BW	Maneuver	Hotelling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hotelling	Cruise	Reduced Speed Zone	Maneuver															Hotelling
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	0.99	0.89	0	5,861	3,368	839	#N/A	0	1,348	656	9,870	483	67	2,377
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	0.75	0	75	23	3	#N/A	0	5	1	18	0	0	0
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	45%	10%	0.99	0.23	0	58	34	10	#N/A	0	13	2	148	4	1	49
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	
Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	1.05	0.89	0	581	278	72	#N/A	0	161	53	648	19	2	131	
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	0.99	0.88	0	8,766	14,551	1,629	#N/A	0	3,073	1,010	12,733	1,022	93	2,844
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	0.85	0	105	62	4	#N/A	0	11	2	24	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0		
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	0.99	1.10	0	12	15	2	#N/A	0	6	2	22	1	0	1
Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	0.99	0.88	0	90	92	11	#N/A	0	22	5	59	3	0	11	
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0		
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0		
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	1.01	0.87	0	794	508	149	#N/A	0	731	95	2,002	186	24	1,033
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.00	0.89	0	2,023	1,170	342	#N/A	0	546	213	3,661	75	10	289
Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	0.99	0.78	0	141	44	11	#N/A	0	29	10	126	4	0	26	
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	0.99	0.88	0	26,681	24,238	4,384	#N/A	0	7,593	3,235	37,741	2,426	288	8,150
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	0.87	0	688	271	27	#N/A	0	56	12	211	0	0	0
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0			
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0			
Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0			
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	0.99	0.88	0	41,308	42,157	6,852	#N/A	0	12,015	4,902	60,344	3,931	448	13,371
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	1.10	0.86	0	867	356	34	#N/A	0	71	15	253	0	0	0
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	1.01	0.86	0	852	542	159	#N/A	0	744	97	2,151	190	25	1,081
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	1.00	0.89	0	2,034	1,185	344	#N/A	0	552	214	3,684	76	10	290
Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	1.04	0.87	0	811	414	94	#N/A	0	213	68	833	26	3	169	
Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	1.00	0.88	0	45,873	44,654	7,483	#N/A	0	13,594	5,295	67,265	4,223	485	14,911	



OGV- SO2

Terminal	Vessel Type	Number of calls	Avg Vessel Length ft	Avg Duration at Berth hrs	M/E				Avg Aux Installed Power (kW)	Time in Mode (hrs)					M/E Load Factor					A/E Load Factor				Main Engine Emission Factors (RO - 2.7% S) g/kw-hr		Aux Engine Emission Factors g/kw-hr		M/E Emissions (lbs) - Reduced Speed Zone-1		M/E Emissions (lbs) - Reduced Speed Zone-2		M/E Emissions (lbs) - Maneuvering		M/E Emissions (lbs) - Hotelling		A/E Emissions (lbs) - Cruising		A/E Emissions (lbs) - Reduced Speed Zone		A/E Emissions (lbs) - Maneuvering		A/E Emissions (lbs) - Hotelling		Boiler Emissions (lbs) - Reduced Speed Zone	Boiler Emissions (lbs) - Maneuvering	Boiler Emissions (lbs) - Hotelling
					Avg Power (HP)	Avg Power (kW)	Avg Service Speed (kts)	Avg Maxium Speed (knts)		Cruise	Outside BW	Inside BW	Maneuver	Hoteling	Cruise	Within Breakwater Leg (RSZ)	Upriver (RSZ)	Calculated Maneuver LF	Applied Maneuver LF	Hoteling	Cruise	Reduced Speed Zone	Maneuver	Hoteling	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2	SO2		
CS	Container	251	726	18	28,153	20,994	20	22	5,857	0.0	1.6	2.0	0.5	17.8	83%	40%	6%	1%	2%	0%	13%	13%	45%	21%	10.31	8.86	0	60,791	11,106	1,197	#N/A	0	13,504	6,573	98,895	16,819	2,326	82,814								
	Barge	5	343	17	5,000	3,728	10	11	600	0.0	2.7	2.6	0.5	16.7	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	11.10	7.48	0	755	215	12	#N/A	0	45	11	184	0	0	0								
	Cruise	1	895	46	84,967	63,360	19	20	63,360	0.0	2.1	2.0	0.5	46.2	83%	21%	6%	1%	2%	0%	10%	10%	10%	10%	10.30	2.05	0	607	173	14	#N/A	0	115	14	1,322	147	18	1,691								
	Ro-Ro	0																																												
	Breakbulk	42	567	27	13,874	10,346	17	18	2,850	0.0	2.1	2.0	0.5	27.3	83%	32%	10%	1%	2%	0%	17%	17%	45%	10%	10.74	8.95	0	5,916	1,689	102	#N/A	0	1,615	531	6,496	675	84	4,572								
NC	Container	350	799	15	39,231	29,255	23	24	6,297	0.0	1.6	3.8	0.5	15.3	83%	26%	4%	0%	2%	0%	13%	13%	47%	20%	10.30	8.85	0	89,822	31,988	2,325	#N/A	0	30,780	10,118	127,558	35,617	3,244	99,104								
	Barge	7	343	13	5,000	3,728	10	11	600	0.0	2.7	5.1	0.5	12.6	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	11.10	7.48	0	755	215	12	#N/A	0	105	18	242	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0								
	Ro-Ro	1	623	13	17,400	12,975	19	21	2,850	0.0	2.1	3.9	0.5	12.5	83%	20%	6%	1%	2%	0%	15%	15%	45%	26%	10.30	11.10	0	119	66	3	#N/A	0	62	16	227	24	2	50								
	Breakbulk	4	790	25	22,301	16,630	17	18	2,850	0.0	2.1	3.9	0.5	24.9	83%	41%	12%	2%	2%	0%	17%	17%	45%	10%	10.30	8.84	0	836	465	15	#N/A	0	223	50	596	94	8	398								
UP	Container	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0	0							
	Barge	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0	0								
	Cruise	46	610	21	27,163	20,255	19	20	20,255	0.0	2.1	1.8	0.5	21.4	83%	36%	11%	1%	2%	0%	10%	10%	10%	10%	10.42	8.74	0	7,599	1,977	214	#N/A	0	7,331	952	19,933	6,488	843	35,987								
	Ro-Ro	170	619	15	16,870	12,580	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	10.34	8.86	0	20,571	5,352	487	#N/A	0	5,468	2,130	36,679	2,613	339	10,055								
	Breakbulk	9	587	29	11,621	8,665	15	15	2,533	0.0	2.1	1.8	0.5	29.2	83%	44%	13%	2%	2%	0%	15%	15%	40%	9%	10.30	7.86	0	1,463	381	16	#N/A	0	291	100	1,260	123	16	903								
WT	Container	1082	799	14	34,105	25,432	22	23	6,586	0.0	1.6	2.6	0.5	14.2	83%	30%	4%	1%	2%	0%	13%	13%	46%	20%	10.32	8.83	0	276,206	65,791	6,255	#N/A	0	76,038	32,396	377,814	84,537	10,028	284,005								
	Barge	46	343	18	5,000	3,728	10	11	600	0.0	2.7	3.4	0.5	17.8	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	11.10	7.48	0	6,941	2,583	111	#N/A	0	557	120	2,109	0	0	0								
	Cruise	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0								
	Ro-Ro	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0								
	Breakbulk	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.00	0.00	0	0	0	0	#N/A	0	0	0	0	0	0	0	0								
Total	Container	1683	788	15	34,283	25,565	22	23	6,417	0.0	1.6	2.8	0.5	14.9	83%	30%	5%	1%	2%	0%	13%	13%	46%	20%	10.31	8.84	0	426,819	108,885	9,777	#N/A	0	120,323	49,087	604,267	136,973	15,598	465,923								
	Barge	58	343	17	5,000	3,728	10	11	600	0.0	2.7	3.6	0.5	17.1	83%	61%	18%	5%	5%	0%	17%	17%	45%	22%	11.10	8.60	0	8,752	3,387	141	#N/A	0	708	149	2,536	0	0	0								
	Cruise	47	616	22	28,393	21,172	19	20	21,172	0.0	2.1	1.8	0.5	21.9	83%	35%	10%	1%	2%	0%	10%	10%	10%	10%	10.42	8.60	0	8,206	2,150	228	#N/A	0	7,446	966	21,255	6,635	861	37,678								
	Ro-Ro	171	619	15	16,873	12,582	19	20	2,850	0.0	2.1	1.8	0.5	14.8	83%	21%	6%	1%	2%	0%	15%	15%	45%	26%	10.34	8.88	0	20,690	5,418	490	#N/A	0	5,530	2,146	36,905	2,637	341	10,105								
	Breakbulk	55	587	27	14,164	10,562	17	18	2,798	0.0	2.1	2.1	0.5	27.4	83%	35%	10%	1%	2%	0%	17%	17%	44%	10%	10.64	8.76	0	8,215	2,535	133	#N/A	0	2,129	681	8,352	892	108	5,873								
	Total	2014	751	15	31,275	23,322	21	22	6,192	0.0	1.7	2.7	0.5	15.5	83%	31%	5%	1%	2%	0%	13%	13%	45%	20%	10.35	8.83	0	472,683	122,374	10,768	#N/A	0	136,135	53,029	673,315	147,138	16,908	519,579								

