



Port of San Francisco  
San Francisco Bay CLEARING Program  
(Cruise Liner Emissions Reduction Incentives Grant)

FINAL REPORT  
June 15, 2007

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Granting Agency: US Environmental Protection Agency, Region 9 (AIR-1)  
Grant Amount: \$100,000.00  
Grant Period: September 2005 – October 2006

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1. Goals & Objectives

The goal of this project, per the Port of San Francisco grant application, was to get all capable cruise ships that berth in San Francisco during the grant year to use low-sulfur fuels while in port. Based on fuel prices at the time of the application, we projected a reduction of up to 58.5 tons of emissions of sulfur oxides. We hoped that the program would create some enduring practices that would last beyond the term of the grant.

2. Achieving Goals & Objectives

There was widespread interest in the SF Bay CLEARING Program, with 41 of the 110 cruise ship calls, or 37.3%, participating during the 14-month grant period. The following cruise lines were involved: Princess Cruises (25), Celebrity Cruises (12), Crystal Cruises (3), and Royal Caribbean International (1). While the participation percentage is interesting from a maritime practices perspective, it did not impact the attainment of the stated emissions reduction goal.

As a result of the program, the total amount of reduction in particulate matter was 916 pounds, which is equivalent to taking a large truck out of service for approximately 1.2 million miles. Sulfur emissions were reduced by 26.1 tons. While this is somewhat less than projected reductions, the difference was primarily due to the increased market price of Marine Diesel Oil (something beyond the control of the Port). The participating cruise lines expended in excess of \$100,000 for the shared cost of low-sulfur fuel.

Effective January 1, 2007, the California Air Resources Board implemented a regulation requiring all ocean-going vessels, not only cruise ships, to use low-sulfur fuel (0.5% or less) while in California waters. This is a goal of the SF Bay CLEARING Program that was adopted on a statewide basis.

3. Strategies and Actions

The strategy employed and actions taken to implement this program were extremely straightforward. The grant budget was expended in a predictable manner over the course of 14 months, with payment of 41 vouchers to participating vessels.

The details of the ships, dates, cruise lines, and emission reductions are listed on the attached spreadsheet.

4. Conclusion

From the point of view of the Port of San Francisco, this program was a clear success. The emissions reductions were substantial and cost-effective. There was significant buy-in from private industry and environmental groups. This was an excellent example of the kind of cross-sector collaborations that are possible.

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Report Submitted by:  
Port of San Francisco

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June 15, 2007

Port of San Francisco  
EPA Grant Tally Sheet

No.	Call Date	Line	Vessel	MDO Consumed (Metric Tons)	Sulfur Reduced (Metric Tons)	PM Reduced (Pounds)	Credit Amount	Remaining Balance	Total Credits	No. Calls	Average per ship
1	9/2-3/2005	Celebrity	Infinity	74.60	2.5	86	6,472.00	100,000.00	6,472.00	1	6,472.00
2	9/3/2005	Crystal	Harmony	13.50	0.4	16	2,262.00	91,266.00	8,794.00	2	4,367.00
3	9/15/2005	Celebrity	Infinity	28.30	0.9	33	3,296.00	88,030.00	11,970.00	3	3,990.00
4	9/15/2005	Crystal	Harmony	15.50	0.5	18	2,262.00	85,768.00	14,232.00	4	3,558.00
5	9/27/2005	Celebrity	Infinity	16.00	0.5	19	2,966.00	82,812.00	17,188.00	5	3,437.60
6	9/27/2005	Celebrity	Summit	24.06	0.8	28	3,236.00	79,576.00	20,424.00	6	3,404.00
7	9/27/2005	Crystal	Harmony	9.60	0.3	11	1,773.60	77,802.40	22,197.60	7	3,171.09
8	10/1/2005	Princess	Dawn	14.00	0.5	16	2,568.50	75,233.90	24,766.10	8	3,095.76
9	10/1/2005	Princess	Dawn	10.00	0.3	12	1,995.50	73,238.90	26,761.10	9	2,973.96
10	10/21/2005	Princess	Dawn	15.50	0.5	18	2,568.50	70,670.40	29,329.60	10	2,932.96
11	10/31/2005	Princess	Dawn	16.00	0.5	19	2,568.50	68,101.90	31,889.10	11	2,899.83
12	11/10/2005	Princess	Dawn	14.60	0.5	17	2,568.50	65,533.40	34,466.60	12	2,872.22
13	11/20/2005	Princess	Dawn	15.00	0.5	17	2,568.50	62,964.90	37,035.10	13	2,848.85
14	11/30/2005	Princess	Dawn	16.70	0.6	19	2,568.50	60,396.40	39,603.60	14	2,828.83
15	12/10/2005	Princess	Dawn	16.50	0.5	19	2,186.25	58,210.15	41,789.85	15	2,785.99
16	12/20/2005	Princess	Dawn	15.70	0.5	18	1,946.93	56,212.32	43,787.68	16	2,736.73
17	12/30/2005	Princess	Dawn	15.30	0.5	18	1,946.93	54,265.39	45,734.61	17	2,680.27
18	1/9/2006	Princess	Dawn	15.10	0.5	17	1,774.25	52,491.14	47,508.86	18	2,639.38
19	1/19/2006	Princess	Dawn	15.80	0.5	18	1,884.15	50,606.99	49,393.01	19	2,599.63
20	1/29/2006	Princess	Dawn	12.10	0.4	14	1,494.35	49,112.64	50,887.36	20	2,544.57
21	2/8/2006	Princess	Dawn	11.20	0.4	13	1,551.20	47,561.44	52,438.56	21	2,497.07
22	2/18/2006	Princess	Dawn	10.00	0.3	12	1,380.00	46,181.44	53,818.56	22	2,446.30
23	2/28/2006	Princess	Dawn	9.60	0.3	11	1,324.80	44,856.64	55,143.36	23	2,397.54
24	3/10/2006	Princess	Dawn	8.50	0.3	10	1,204.88	43,651.76	56,348.24	24	2,347.84
25	3/20/2006	Princess	Dawn	11.40	0.4	13	1,624.50	42,027.26	57,972.74	25	2,318.91
26	3/30/2006	Princess	Dawn	13.40	0.4	16	2,084.78	40,109.21	59,890.79	26	2,303.49
27	4/9/2006	Princess	Dawn	13.30	0.4	15	2,084.78	38,024.43	61,975.57	27	2,295.39
28	4/17/2006	Celebrity	Infinity	31.70	1.0	37	3,236.00	34,788.43	65,211.57	28	2,328.98
29	4/19/2006	Princess	Dawn	18.20	0.5	19	2,539.35	32,249.08	67,750.92	29	2,336.24
30	4/28/2006	Celebrity	Infinity	28.35	0.9	33	3,236.00	29,013.08	70,986.92	30	2,366.23
31	4/29/2006	Princess	Dawn	9.80	0.3	11	1,536.15	27,476.93	72,523.07	31	2,339.45
32	5/8/2006	Celebrity	Infinity	28.35	0.9	33	3,236.00	24,240.93	75,759.07	32	2,367.47
33	5/9/2006	Princess	Dawn	19.9	0.7	23	2,568.50	21,672.43	78,327.57	33	2,373.56
34	5/20/2006	Celebrity	Infinity	28.35	0.9	33	3,236.00	18,436.43	81,563.57	34	2,398.93
35	6/1/2006	Celebrity	Infinity	31.9	1.1	37	3,236.00	15,200.43	84,799.57	35	2,422.84
36	9/13/2006	Royal Caribbean	Infinity	13.63	0.4	16	2,272.81	12,927.62	87,072.38	36	2,418.68
37	9/21/2006	Royal Caribbean	Infinity	50.3	1.7	58	3,236.00	9,691.62	90,308.38	37	2,440.77
38	9/24/2006	Celebrity	Summit	22.93	0.8	27	3,236.00	6,456.62	93,544.38	38	2,461.59
39	9/27/2006	Celebrity	Summit	30.94	1.0	36	3,236.00	3,219.62	96,780.38	39	2,481.55
40	10/7/2006	Princess	Dawn	13.6	0.4	16	2,036.60	1,183.02	98,816.98	40	2,470.42
41	10/13/2006	Princess	Dawn	14.4	0.5	17	1,183.02	(0.00)	100,000.00	41	2,439.02
			Total	791.61	26.1	916					