

**Appendix B
Summary of Sampling Data Received for the 2007 cruise season.**

Note: Only the data for the ships that received approval for discharge are required to submit data per the MOU; and some of the data below is data gathered prior to approval for continuous discharge in Alaska.

highlighted blue = outside of Washington/Alaska voyage waters or discharge approval period

SHIP: NORWEGIAN PEARL							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
							St. Units
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
3/2/07	Unknown/SGS	7.31	ND< 2.0	ND< 6.0	ND< 0.05	ND< 2	MIXED BLACK AND GRAY OVERBOARD
3/11/07	Unknown/SGS	7.51	3.7	5.4	ND< 0.05	ND< 1	MIXED BLACK AND GRAY OVERBOARD
3/16/07	Unknown/SGS	6.15	7.6	17	ND< 0.05	ND< 2	MIXED BLACK AND GRAY OVERBOARD
3/20/07	Unknown/SGS	6.2	10	ND< 2.0	0.10	ND< 50	MIXED BLACK AND GRAY OVERBOARD
3/25/07	Unknown/SGS	6.43	3.3	4.4	ND< 0.05	ND< 1	MIXED BLACK AND GRAY OVERBOARD
4/13/07	Unknown/SGS	6.26	ND< 2.0	6.1	ND< 0.05	ND< 2.0	MIXED BLACK AND GRAY OVERBOARD
5/13/07	Seattle/Laucks	6.3	12	7	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
5/29/07	Juneau/Analytica	6.56	16	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
6/3/07	Seattle/Laucks	8.0	7	44	ND< 0.10	7.0	MIXED BLACK AND GRAY OVERBOARD
6/5/07	Juneau/Analytica	6.98	14.0	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
6/19/07	Juneau/Analytica	7.04	18.0	5.00	ND< 0.10	< 1	MIXED BLACK AND GRAY OVERBOARD
7/8/07	Seattle/Laucks	6.4	9	5	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/17/07	Juneau/Analytica	7.00	19.4	13	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
8/5/07	Seattle/Laucks	6.4	14	40	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/21/07	Juneau/Analytica	7.67	5.98	4.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/2/07	Seattle/Laucks	6.6	5	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/11/07	Juneau/Analytica	7.56	2.09	8.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect; * Detection limit of 50 used. Non detect result.							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	6.15	ND	ND	ND	ND	met Seattle sampling requirement
	AVERAGE		8.89	10.41	0.09		
	MAXIMUM	8.00	19.40	44.00	0.10	* 50	
	GEOMETRIC MEAN					2	

SHIP: NORWEGIAN STAR							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
							St. Units
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
1/9/07	Unknown/SGS	6.87	8.8	ND< 10	0.15	ND< 2	MIXED BLACK AND GRAY OVERBOARD
1/25/07	Unknown/SGS	6.58	ND< 5.0	ND< 10	0.06	ND< 2	MIXED BLACK AND GRAY OVERBOARD
2/2/07	Unknown/SGS	6.71	ND< 5.0	ND< 10	0.03	ND< 2	MIXED BLACK AND GRAY OVERBOARD
2/18/07	Unknown/SGS	6.62	ND< 5.0	ND< 10	0.05	ND< 2	MIXED BLACK AND GRAY OVERBOARD
3/14/07	Unknown/SGS	7.00	8.7	ND< 10	0.13	ND< 2	MIXED BLACK AND GRAY OVERBOARD
3/22/07	Unknown/SGS	7.09	22.0	23	** 0.48	8	MIXED BLACK AND GRAY OVERBOARD
4/15/07	Unknown/SGS	6.39	ND< 5.0	ND< 10	ND< 0.02	ND< 20	MIXED BLACK AND GRAY OVERBOARD
4/23/07	Unknown/SGS	6.51	ND< 5.0	ND< 10	ND< 0.02	8	MIXED BLACK AND GRAY OVERBOARD
5/5/07	Seattle/Laucks	6.4	11	6	ND< 0.10	4.0	MIXED BLACK AND GRAY OVERBOARD
5/15/07	Juneau/Analytica	6.97	7.97	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
6/2/07	Seattle/Laucks	6.7	22	5	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
6/5/07	Juneau/Analytica	7.17	10.6	6.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
6/5/07	Juneau/Analytica	7.20	10.4	8.00	ND< 0.10	4	MIXED BLACK AND GRAY OVERBOARD unannounced sampling - duplicate
6/19/07	Juneau/Analytica	6.90	3.08	< 4.0	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/7/07	Seattle/Laucks	6.9	6	5	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/10/07	Juneau/Analytica	6.63	5.94	6.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/17/07	Juneau/Analytica	6.85	2.43	< 4.0	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
8/4/07	Seattle/Laucks	6.5	11	5	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
8/21/07	Juneau/Analytica	7.29	4.30	< 4.0	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/1/07	Seattle/Laucks	6.6	ND< 4	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/11/07	Juneau/Analytica	7.34	18.0	9.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect; *Detection limit of 20 used. Result is non-detect. ** field result							
U = analyte not detected, to the limit of detection							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	6.39	ND	ND	ND	ND	met Seattle sampling requirement
	AVERAGE		8.63	7.67	0.11		
	MAXIMUM	7.34	22.00	23.00	0.48	* 20	
	GEOMETRIC MEAN					3	

SHIP: NORWEGIAN SUN							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
		St. Units	mg/l	mg/l	mg/l		#/100 ml
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
4/13/07	Unknown/SGS	6.64	10.0	1	0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
4/17/07	Unknown/SGS	6.53	ND< 2.0	1	0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
8/8/07	Juneau/Analytica	7.13	11.3	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/15/07	Juneau/Analytica	7.52	7.28	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/5/07	Juneau/Analytica	6.98	4.13	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
9/12/07	Juneau/Analytica	7.17	6.79	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	6.53	ND	ND	ND	ND	Seattle testing compliance (did not call in Seattle)
	AVERAGE		6.92	3	0.10		
	MAXIMUM	7.52	11.30	4	0.10	2	
	GEOMETRIC MEAN					2	

SHIP: GOLDEN PRINCESS							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
		St. Units	mg/l	mg/l	mg/l		#/100 ml
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
4/22/07	San Francisco/CERCO	6.9	7	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
5/7/07	Juneau/Analytica	7.48	47.9	18.0	ND< 0.10	200	MIXED BLACK AND GRAY OVERBOARD
5/10/07	Ketchikan/R&M	7.03	2.48	3.00	ND< 0.10	6	MIXED BLACK AND GRAY OVERBOARD
5/12/07	Seattle/Laucks	7.4	4	5	ND< 0.10	4	MIXED BLACK AND GRAY OVERBOARD
6/2/07	Seattle/Laucks	7.4	10	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
6/4/07	Juneau/Analytica	6.99	8.31	6.00	ND< 0.10	< 1	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
6/18/07	Juneau/Analytica	6.25	5.33	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/2/07	Juneau/Analytica	7.74	16.2	6.00	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/7/07	Seattle/Laucks	6.8	20	7	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
7/31/07	Skagway/Analytica	6.30	5.47	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD unannounced sampling
8/4/07	Seattle/Laucks	6.9	11	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/6/07	Juneau/Analytica	7.59	9.39	< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/1/07	Seattle/Laucks	7.3	18	5	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
9/3/07	Juneau/Analytica	7.73	ND< 2.0	3.00	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect							
U = analyte not detected, to the limit of detection							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	6.25	ND	ND	ND	ND	met Seattle sampling requirement
	AVERAGE		11.93	4.86	0.09		
	MAXIMUM	7.74	47.90	7.00	0.10	200	
	GEOMETRIC MEAN					3	

SHIP: SUN PRINCESS							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
	St. Units	mg/l	mg/l	mg/l	#/100 ml		
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
4/19/07	Port Everglades/Kappa	7.18	1.3	ND< 3	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
5/13/07	Seattle/Laucks	7.4	9	ND< 2	ND< 0.10	2	MIXED BLACK AND GRAY OVERBOARD
5/16/07	Juneau/Analytica	7.45	ND< 2.0	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
5/30/07	Juneau/Analytica	7.83	ND< 2.0	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY unannounced sampling
5/30/07	Juneau/Analytica	7.85	ND< 2.0	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY unannounced sampling (blind duplicate)
6/3/07	Seattle/Laucks	7.3	6	3	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
6/6/07	Juneau/Analytica	7.83	2.09	< 4.0	ND< 0.11	< 2	MIXED BLACK AND GRAY OVERBOARD
7/8/07	Seattle/Laucks	8.0	ND< 4	3	ND< 0.12	< 2	MIXED BLACK AND GRAY OVERBOARD
7/11/07	Juneau/Analytica	7.74	4.01	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/1/07	Juneau/Analytica	7.87	5.04	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/5/07	Seattle/Laucks	7.5	ND< 60	3	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/22/07	Juneau/Analytica	7.97	17.9	24	ND< 0.10	< 2	MIXED BLACK AND GRAY unannounced sampling
9/2/07	Seattle/Laucks	7.6	* 110	ND< 2	ND< 0.10	80	MIXED BLACK AND GRAY OVERBOARD
9/5/07	Juneau/Analytica	7.81	ND< 2.0	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect; * a detection limit of 60 mg/l was used as a result of dilutions used during the test.							
U = analyte not detected, to the limit of detection							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	7.18	ND	ND	ND	ND	met Seattle sampling requirement
	AVERAGE		16.24	4.9	0.10		
	MAXIMUM	8.00	110.00	24.0	0.12	80	
	GEOMETRIC MEAN					3	

SHIP: HOLLAND NOORDAM							
	pH	BOD	TSS	Chlorine Residual	Fecal Coliform	Comments	
	St. Units	mg/l	mg/l	mg/l	#/100 ml		
MOU/Alaska Limits ¹	6-9	30/45	30/45	10 ug/l	20 / 40		
WA State Water Quality Standards ²	6.8-8.7	NA	NA	13 / 7.5 ug/l	14 / 43		
Sample Date	Location/ Lab						
7/8/07	Seattle/Laucks	7.4	16	ND< 2	ND< 0.10	2.0	MIXED BLACK AND GRAY OVERBOARD
7/18/07	Juneau/Analytica	7.68	ND< 2	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/5/07	Seattle/Laucks	7.1	23	ND< 2	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/8/07	Juneau/Analytica	7.74	2.21	2	ND< 0.10	ND< 2	MIXED BLACK AND GRAY unannounced sampling
8/15/07	Juneau/Analytica	7.88	18.3	ND< 4	ND< 0.10	< 2	MIXED BLACK AND GRAY OVERBOARD
8/17/07	Juneau/Analytica	7.81	28.0	ND< 1	ND< 0.10	ND< 2	MIXED BLACK AND GRAY unannounced sampling
9/2/07	Seattle/Laucks	6.8	38	ND< 2	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
9/19/07	Juneau/Analytica	7.40	2.87	ND< 4	ND< 0.10	ND< 2	MIXED BLACK AND GRAY OVERBOARD
ND = Non Detect							
U = analyte not detected, to the limit of detection							
Unannounced sampling includes other parameters not listed above.							
	MINIMUM	6.80	ND	ND	ND	ND	met Seattle sampling requirement
	AVERAGE		16.30	3	0.10		
	MAXIMUM	7.88	38.00	4	0.10	2	
	GEOMETRIC MEAN					2	

ND = Non Detect, value in box is the detection level

BOD = Biochemical Oxygen Demand - or organics; TSS = Total Suspended Solids

mg/l = milligrams per liter; ug/l = micrograms per liter; #/100 ml = coliforms per 100 milliliters

¹ MOU/Alaska limits from Title XIV, Certain Alaska Cruise Ship Operations, Section 1404(c) /40CFR 133.102

BOD and TSS: 30-day average shall not exceed 30 mg/l, 7-day average shall not exceed 45 mg/l

Fecal Coliform: geometric mean of any 30-day period shall not exceed 20 fecal coliform/100 ml and not more than 10% of the samples exceed 40 fecal coliform/100 ml

² Washington State Water Quality Standards for Surface Waters of the State of Washington Chapter 173-201A WAC

Fecal Coliform: shall not exceed a geometric mean of 14 colonies/100 ml and not more than 10% of a samples shall exceed a geometric mean of 43 colonies/100 ml

pH: 7-8.5 with a human-caused variation within less than 0.2

chlorine: 13 ug/l is the acute limit (1-hour average); 7.5 ug/l is the chronic limit (4-day average)