APPENDIX 3-1

CALCULATION OF
GULF OF MEXICO SHRIMP CATCH

Calculation of Gulf of Mexico Shrimp Catch

	Texas	Louisiana	Source/Comment
Landings (lbs)	70,753,261	85,743,137	NMFS, 1999/Average of 1997-1998 landings
Catch:Landings Ratio	0.85	1.23	Offshore Environmental Assessment, Table 3-9 (Avanti, 1993)
Catch (lbs)	60,140,272	105,464,059	Landings * Catch/Landings ratio
Catch by Location (lbs) 0-3 miles Coastal Offshore 3-80 miles	 34,640,797 23,555,742 11,085,055 25,499,475	 60,747,298 45,864,210 14,883,088 44,716,761	Offshore Environmental Assessment, Table 3-9 (Avanti, 1993)/catch * 0.576 = 0-3 mile portion of catch, 0-3 mile portion * 0.668 (TX) or 0.755 (LA) determines protion of 0-3 mile segment that is offshore (as opposed to coastal)
Offshore Area (mi^2) 0-3 mile 3-80 mile	 1,107 28,413	 1,314 33,726	Offshore Environmental Assessment, Table 3-11 (Avanti, 1993)
Catch/Area (lbs/mi^2) 0-3 mile	 10,014	 11,327	
Weighted Average Catch (lbs)	10,850		Assumes all shallow wells drilled are in the Territorial Seas (0-3 miles); weighted by total catch/state

APPENDIX 4-1

GULF OF MEXICO
SURFACE WATER QUALITY ANALYSIS

Water Column Pollutant Concentrations - GOM
Baseline

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	1.0995	2.94E-05	
Fluorene	0.5997	1.60E-05	0
Phenanthrene	1.4225	3.80E-05	
Phenol	0.0039	1.03E-07	0
Priority Pollutants, Metals			
Cadmium	0.1610	4.73E-07	0
Mercury	0.0146	7.04E-09	0
Antimony	0.8342	2.90E-06	0
Arsenic	1.0391	1.39E-07	0
Berylium	0.1024	3.56E-07	
Chromium	35.1248	3.19E-05	0
Copper	2.7368	4.61E-07	0
Lead	5.1370	2.75E-06	0
Nickel	1.9758	2.27E-06	0
Selenium	0.1610	5.59E-07	0
Silver	0.1024	3.56E-07	0
Thallium	0.1756	6.10E-07	0
Zinc	29.3439	3.21E-06	0
Non-Conventional Pollutants			
Aluminum	1327.4109	4.61E-03	
Barium	86055.8132	4.83E-03	
Iron	2245.6908	7.80E-03	
Tin	2.1368	7.42E-06	
Titanium	12.8059	4.45E-05	
Alkylated benzenes	6.1896	1.65E-04	
Alkylated naphthalenes	58.1899	1.55E-03	
Alkylated fluorenes	7.0046	1.87E-04	
Alkylated phenanthrenes	8.8500	2.36E-04	
Alkylated phenols	0.0341	9.12E-07	
Total biphenyls	11.5027	3.07E-04	
Total dibenzothiophenes	0.4902	1.31E-05	

Water Column Pollutant Concentrations - GOM
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.4987	1.33E-05	
Fluorene	0.2720	7.27E-06	0
Phenanthrene	0.6451	1.72E-05	
Phenol	0.0018	4.69E-08	0
Priority Pollutants, Metals			
Cadmium	0.0730	2.15E-07	0
Mercury	0.0066	3.19E-09	0
Antimony	0.3783	1.31E-06	0
Arsenic	0.4712	6.30E-08	0
Berylium	0.0465	1.61E-07	
Chromium	15.9289	1.45E-05	0
Copper	1.2411	2.09E-07	0
Lead	2.3296	1.24E-06	0
Nickel	0.8960	1.03E-06	0
Selenium	0.0730	2.54E-07	0
Silver	0.0465	1.61E-07	0
Thallium	0.0796	2.77E-07	0
Zinc	13.3072	1.46E-06	0
Non-Conventional Pollutants			
Aluminum	601.9718	2.09E-03	
Barium	0.0730	4.10E-09	
Iron	1018.4055	3.54E-03	
Tin	0.9690	3.37E-06	
Titanium	5.8074	2.02E-05	
Alkylated benzenes	2.8072	7.50E-05	
Alkylated naphthalenes	26.3908	7.05E-04	
Alkylated fluorenes	3.1768	8.49E-05	
Alkylated phenanthrenes	4.0137	1.07E-04	
Alkylated phenols	0.0155	4.13E-07	
Total biphenyls	5.2168	1.39E-04	
Total dibenzothiophenes	0.2223	5.94E-06	

Water Column Pollutant Concentrations - GOM
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.4750	1.27E-05	
Fluorene	0.2591	6.92E-06	0
Phenanthrene	0.6145	1.64E-05	
Phenol	0.0017	4.47E-08	0
Priority Pollutants, Metals			
Cadmium	0.0696	2.04E-07	0
Mercury	0.0063	3.04E-09	0
Antimony	0.3604	1.25E-06	0
Arsenic	0.4489	6.00E-08	0
Berylium	0.0443	1.54E-07	
Chromium	15.1752	1.38E-05	0
Copper	1.1824	1.99E-07	0
Lead	2.2194	1.19E-06	0
Nickel	0.8536	9.81E-07	0
Selenium	0.0696	2.42E-07	0
Silver	0.0443	1.54E-07	0
Thallium	0.0759	2.64E-07	0
Zinc	12.6776	1.39E-06	0
Non-Conventional Pollutants			
Aluminum	573.4885	1.99E-03	
Barium	37179.1542	2.09E-03	
Iron	970.2178	3.37E-03	
Tin	0.9232	3.21E-06	
Titanium	5.5326	1.92E-05	
Alkylated benzenes	2.6738	7.14E-05	
Alkylated naphthalenes	25.1368	6.72E-04	
Alkylated fluorenes	3.0259	8.09E-05	
Alkylated phenanthrenes	3.8230	1.02E-04	
Alkylated phenols	0.0147	3.94E-07	
Total biphenyls	4.9689	1.33E-04	
Total dibenzothiophenes	0.2117	5.66E-06	

APPENDIX 4-2

COOK INLET, ALASKA
SURFACE WATER QUALITY ANALYSIS

Water Column Pollutant Concentrations - AK
Baseline (Zero Discharge)

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.0000	0.00E+00		0
Fluorene	0.0000	0.00E+00	0	
Phenanthrene	0.0000	0.00E+00		
Phenol	0.0000	0.00E+00	0	0
Priority Pollutants, Metals				
Cadmium	0.0000	0.00E+00	0	0
Mercury	0.0000	0.00E+00	0	0
Antimony	0.0000	0.00E+00	0	0
Arsenic	0.0000	0.00E+00	0	0
Berylium	0.0000	0.00E+00		0
Chromium	0.0000	0.00E+00	0	0
Copper	0.0000	0.00E+00	0	0
Lead	0.0000	0.00E+00	0	0
Nickel	0.0000	0.00E+00	0	0
Selenium	0.0000	0.00E+00	0	0
Silver	0.0000	0.00E+00	0	0
Thallium	0.0000	0.00E+00	0	0
Zinc	0.0000	0.00E+00	0	0
Non-Conventional Pollutants				
Aluminum	0.0000	0.00E+00		
Barium	0.0000	0.00E+00		
Iron	0.0000	0.00E+00		
Tin	0.0000	0.00E+00		
Titanium	0.0000	0.00E+00		
Alkylated benzenes	0.0000	0.00E+00		
Alkylated naphthalenes	0.0000	0.00E+00		
Alkylated fluorenes	0.0000	0.00E+00		
Alkylated phenanthrenes	0.0000	0.00E+00		
Alkylated phenols	0.0000	0.00E+00		
Total biphenyls	0.0000	0.00E+00		
Total dibenzothiophenes	0.0000	0.00E+00		

Water Column Pollutant Concentrations - AK
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.4987	5.22E-05		0
Fluorene	0.2720	2.85E-05	0	
Phenanthrene	0.6451	6.75E-05		
Phenol	0.0018	1.84E-07	0	0
Priority Pollutants, Metals				
Cadmium	0.0730	8.41E-07	0	0
Mercury	0.0066	1.25E-08	0	0
Antimony	0.3783	5.15E-06	0	0
Arsenic	0.4712	2.47E-07	0	0
Berylium	0.0465	6.32E-07		0
Chromium	15.9289	5.67E-05	0	0
Copper	1.2411	8.19E-07	0	0
Lead	2.3296	4.88E-06	0	0
Nickel	0.8960	4.03E-06	0	0
Selenium	0.0730	9.94E-07	0	0
Silver	0.0465	6.32E-07	0	0
Thallium	0.0796	1.08E-06	0	0
Zinc	13.3072	5.71E-06	0	0
Non-Conventional Pollutants				
Aluminum	601.9718	8.19E-03		
Barium	0.0730	1.61E-08		
Iron	1018.4055	1.39E-02		
Tin	0.9690	1.32E-05		
Titanium	5.8074	7.90E-05		
Alkylated benzenes	2.8072	2.94E-04		
Alkylated naphthalenes	26.3908	2.76E-03		
Alkylated fluorenes	3.1768	3.33E-04		
Alkylated phenanthrenes	4.0137	4.20E-04		
Alkylated phenols	0.0155	1.62E-06		
Total biphenyls	5.2168	5.46E-04		
Total dibenzothiophenes	0.2223	2.33E-05		

Water Column Pollutant Concentrations - AK
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.4750	4.97E-05		0
Fluorene	0.2591	2.71E-05	0	
Phenanthrene	0.6145	6.43E-05		
Phenol	0.0017	1.75E-07	0	0
Priority Pollutants, Metals				
Cadmium	0.0696	8.01E-07	0	0
Mercury	0.0063	1.19E-08	0	0
Antimony	0.3604	4.91E-06	0	0
Arsenic	0.4489	2.35E-07	0	0
Berylium	0.0443	6.02E-07		0
Chromium	15.1752	5.40E-05	0	0
Copper	1.1824	7.80E-07	0	0
Lead	2.2194	4.65E-06	0	0
Nickel	0.8536	3.84E-06	0	0
Selenium	0.0696	9.47E-07	0	0
Silver	0.0443	6.02E-07	0	0
Thallium	0.0759	1.03E-06	0	0
Zinc	12.6776	5.44E-06	0	0
Non-Conventional Pollutants				
Aluminum	573.4885	7.81E-03		
Barium	37179.1542	8.17E-03		
Iron	970.2178	1.32E-02		
Tin	0.9232	1.26E-05		
Titanium	5.5326	7.53E-05		
Alkylated benzenes	2.6738	2.80E-04		
Alkylated naphthalenes	25.1368	2.63E-03		
Alkylated fluorenes	3.0259	3.17E-04		
Alkylated phenanthrenes	3.8230	4.00E-04		
Alkylated phenols	0.0147	1.54E-06		
Total biphenyls	4.9689	5.20E-04		
Total dibenzothiophenes	0.2117	2.22E-05		

APPENDIX 4-3

OFFSHORE CALIFORNIA
SURFACE WATER QUALITY ANALYSIS

Water Column Pollutant Concentrations - CA
Baseline (Zero Discharge)

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.0000	0.00E+00	
Fluorene	0.0000	0.00E+00	0
Phenanthrene	0.0000	0.00E+00	
Phenol	0.0000	0.00E+00	0
Priority Pollutants, Metals			
Cadmium	0.0000	0.00E+00	0
Mercury	0.0000	0.00E+00	0
Antimony	0.0000	0.00E+00	0
Arsenic	0.0000	0.00E+00	0
Berylium	0.0000	0.00E+00	
Chromium	0.0000	0.00E+00	0
Copper	0.0000	0.00E+00	0
Lead	0.0000	0.00E+00	0
Nickel	0.0000	0.00E+00	0
Selenium	0.0000	0.00E+00	0
Silver	0.0000	0.00E+00	0
Thallium	0.0000	0.00E+00	0
Zinc	0.0000	0.00E+00	0
Non-Conventional Pollutants			
Aluminum	0.0000	0.00E+00	
Barium	0.0000	0.00E+00	
Iron	0.0000	0.00E+00	
Tin	0.0000	0.00E+00	
Titanium	0.0000	0.00E+00	
Alkylated benzenes	0.0000	0.00E+00	
Alkylated naphthalenes	0.0000	0.00E+00	
Alkylated fluorenes	0.0000	0.00E+00	
Alkylated phenanthrenes	0.0000	0.00E+00	
Alkylated phenols	0.0000	0.00E+00	
Total biphenyls	0.0000	0.00E+00	
Total dibenzothiophenes	0.0000	0.00E+00	

Water Column Pollutant Concentrations - CA
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.4987	3.86E-05	
Fluorene	0.2720	2.11E-05	0
Phenanthrene	0.6451	5.00E-05	
Phenol	0.0018	1.36E-07	0
Priority Pollutants, Metals			
Cadmium	0.0730	6.22E-07	0
Mercury	0.0066	9.25E-09	0
Antimony	0.3783	3.81E-06	0
Arsenic	0.4712	1.83E-07	0
Berylium	0.0465	4.68E-07	
Chromium	15.9289	4.20E-05	0
Copper	1.2411	6.06E-07	0
Lead	2.3296	3.61E-06	0
Nickel	0.8960	2.98E-06	0
Selenium	0.0730	7.35E-07	0
Silver	0.0465	4.68E-07	0
Thallium	0.0796	8.02E-07	0
Zinc	13.3072	4.23E-06	0
Non-Conventional Pollutants			
Aluminum	601.9718	6.06E-03	
Barium	0.0730	1.19E-08	
Iron	1018.4055	1.03E-02	
Tin	0.9690	9.76E-06	
Titanium	5.8074	5.85E-05	
Alkylated benzenes	2.8072	2.17E-04	
Alkylated naphthalenes	26.3908	2.04E-03	
Alkylated fluorenes	3.1768	2.46E-04	
Alkylated phenanthrenes	4.0137	3.11E-04	
Alkylated phenols	0.0155	1.20E-06	
Total biphenyls	5.2168	4.04E-04	
Total dibenzothiophenes	0.2223	1.72E-05	

Water Column Pollutant Concentrations - CA
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well in Effluent (mg/l)	Water Column Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.4750	3.68E-05	
Fluorene	0.2591	2.01E-05	0
Phenanthrene	0.6145	4.76E-05	
Phenol	0.0017	1.29E-07	0
Priority Pollutants, Metals			
Cadmium	0.0696	5.93E-07	0
Mercury	0.0063	8.82E-09	0
Antimony	0.3604	3.63E-06	0
Arsenic	0.4489	1.74E-07	0
Berylium	0.0443	4.46E-07	
Chromium	15.1752	4.00E-05	0
Copper	1.1824	5.77E-07	0
Lead	2.2194	3.44E-06	0
Nickel	0.8536	2.84E-06	0
Selenium	0.0696	7.00E-07	0
Silver	0.0443	4.46E-07	0
Thallium	0.0759	7.64E-07	0
Zinc	12.6776	4.03E-06	0
Non-Conventional Pollutants			
Aluminum	573.4885	5.78E-03	
Barium	37179.1542	6.05E-03	
Iron	970.2178	9.77E-03	
Tin	0.9232	9.30E-06	
Titanium	5.5326	5.57E-05	
Alkylated benzenes	2.6738	2.07E-04	
Alkylated naphthalenes	25.1368	1.95E-03	
Alkylated fluorenes	3.0259	2.34E-04	
Alkylated phenanthrenes	3.8230	2.96E-04	
Alkylated phenols	0.0147	1.14E-06	
Total biphenyls	4.9689	3.85E-04	
Total dibenzothiophenes	0.2117	1.64E-05	

APPENDIX 4-4

GULF OF MEXICO
SEDIMENT PORE WATER QUALITY ANALYSIS

Pore Water Pollutant Concentrations - GOM
Shallow Water Development
Baseline

Pore Water Pollutant Concentrations - GOM
Shallow Water Exploratory
Baseline

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics						
Naphthalene	0.0245	1.95E-03		0.0513	4.08E-03	
Fluorene	0.0133	5.43E-04	0	0.0280	1.14E-03	0
Phenanthrene	0.0316	3.58E-04		0.0663	7.49E-04	
Phenol	0.0001	9.76E-04	0	0.0002	2.05E-03	0
Priority Pollutants, Metals						
Cadmium	0.0036	3.94E-04	0	0.0075	8.26E-04	0
Mercury	0.0003	5.86E-06	0	0.0007	1.23E-05	0
Antimony	0.0186	2.41E-03	0	0.0389	5.06E-03	0
Arsenic	0.0231	1.16E-04	0	0.0484	2.42E-04	0
Beryllium	0.0023	2.96E-04		0.0048	6.21E-04	
Chromium	0.7814	2.66E-02	0	1.6376	5.57E-02	1.11
Copper	0.0609	3.84E-04	0	0.1276	8.04E-04	0
Lead	0.1143	2.29E-03	0	0.2395	4.79E-03	0
Nickel	0.0440	1.89E-03	0	0.0921	3.96E-03	0
Selenium	0.0036	4.66E-04	0	0.0075	9.76E-04	0
Silver	0.0023	2.96E-04	0.00	0.0048	6.21E-04	0.00
Thallium	0.0039	5.08E-04	0	0.0082	1.06E-03	0.00
Zinc	0.6528	2.68E-03	0	1.3681	5.61E-03	0

Pore Water Pollutant Concentrations - GOM
Deep Water Development
Baseline

Pore Water Pollutant Concentrations - GOM
Deep Water Exploratory
Baseline

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics						
Naphthalene	0.0370	2.95E-03		0.0823	6.55E-03	
Fluorene	0.0202	8.22E-04	0	0.0449	1.83E-03	0
Phenanthrene	0.0479	5.41E-04		0.1065	1.20E-03	
Phenol	0.0001	1.48E-03	0	0.0003	3.28E-03	0
Priority Pollutants, Metals						
Cadmium	0.0054	5.96E-04	0	0.0121	1.33E-03	0
Mercury	0.0005	8.87E-06	0	0.0011	1.97E-05	0
Antimony	0.0281	3.65E-03	0	0.0624	8.12E-03	0
Arsenic	0.0350	1.75E-04	0	0.0778	3.89E-04	0
Beryllium	0.0034	4.48E-04		0.0077	9.97E-04	
Chromium	1.1825	4.02E-02	0.00	2.6293	8.94E-02	1.79
Copper	0.0921	5.80E-04	0	0.2049	1.29E-03	0
Lead	0.1729	3.46E-03	0	0.3845	7.69E-03	0.00
Nickel	0.0665	2.86E-03	0	0.1479	6.36E-03	0.00
Selenium	0.0054	7.05E-04	0	0.0121	1.57E-03	0
Silver	0.0034	4.48E-04	0.00	0.0077	9.97E-04	0.00
Thallium	0.0059	7.69E-04	0.00	0.0131	1.71E-03	0.00
Zinc	0.9879	4.05E-03	0	2.1965	9.01E-03	0

Pore Water Pollutant Concentrations - GOM
Shallow Water Development
BAT Option 1

Pore Water Pollutant Concentrations - GOM
Shallow Water Exploratory
BAT Option 1

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria		Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics							
Naphthalene	0.0083	6.59E-04			0.0173	1.38E-03	
Fluorene	0.0045	1.84E-04	0		0.0095	3.85E-04	0
Phenanthrene	0.0107	1.21E-04			0.0224	2.54E-04	
Phenol	0.0000	3.30E-04	0		0.0001	6.92E-04	0
Priority Pollutants, Metals							
Cadmium	0.0012	1.33E-04	0		0.0025	2.79E-04	0
Mercury	0.0001	1.98E-06	0		0.0002	4.16E-06	0
Antimony	0.0063	8.16E-04	0		0.0132	1.71E-03	0
Arsenic	0.0078	3.91E-05	0		0.0164	8.20E-05	0
Berylium	0.0008	1.00E-04			0.0016	2.10E-04	
Chromium	0.2644	8.99E-03	0		0.5541	1.88E-02	0
Copper	0.0206	1.30E-04	0		0.0432	2.72E-04	0
Lead	0.0387	7.73E-04	0		0.0810	1.62E-03	0
Nickel	0.0149	6.40E-04	0		0.0312	1.34E-03	0
Selenium	0.0012	1.58E-04	0		0.0025	3.30E-04	0
Silver	0.0008	1.00E-04	0		0.0016	2.10E-04	0
Thallium	0.0013	1.72E-04	0		0.0028	3.60E-04	0
Zinc	0.2209	9.06E-04	0		0.4629	1.90E-03	0

Pore Water Pollutant Concentrations - GOM
Deep Water Development
BAT Option 1

Pore Water Pollutant Concentrations - GOM
Deep Water Exploratory
BAT Option 1

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics						
Naphthalene	0.0125	9.97E-04		0.0279	2.22E-03	
Fluorene	0.0068	2.78E-04	0	0.0152	6.18E-04	0
Phenanthrene	0.0162	1.83E-04		0.0360	4.07E-04	
Phenol	0.0000	5.00E-04	0	0.0001	1.11E-03	0
Priority Pollutants, Metals						
Cadmium	0.0018	2.02E-04	0	0.0041	4.49E-04	0
Mercury	0.0002	3.00E-06	0	0.0004	6.67E-06	0
Antimony	0.0095	1.24E-03	0	0.0211	2.75E-03	0
Arsenic	0.0118	5.92E-05	0	0.0263	1.32E-04	0
Berylium	0.0012	1.52E-04		0.0026	3.37E-04	
Chromium	0.4001	1.36E-02	0	0.8897	3.02E-02	0
Copper	0.0312	1.96E-04	0	0.0693	4.37E-04	0
Lead	0.0585	1.17E-03	0	0.1301	2.60E-03	0
Nickel	0.0225	9.68E-04	0	0.0500	2.15E-03	0
Selenium	0.0018	2.38E-04	0	0.0041	5.30E-04	0
Silver	0.0012	1.52E-04	0	0.0026	3.37E-04	0.00
Thallium	0.0020	2.60E-04	0	0.0044	5.78E-04	0
Zinc	0.3343	1.37E-03	0	0.2515	1.03E-03	0

Pore Water Pollutant Concentrations - GOM
Shallow Water Development
BAT Option 2

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.0076	6.06E-04	
Fluorene	0.0042	1.69E-04	0
Phenanthrene	0.0098	1.11E-04	
Phenol	0.0000	3.04E-04	0
Priority Pollutants, Metals			
Cadmium	0.0011	1.23E-04	0
Mercury	0.0001	1.82E-06	0
Antimony	0.0058	7.51E-04	0
Arsenic	0.0072	3.60E-05	0
Berylium	0.0007	9.22E-05	
Chromium	0.2431	8.27E-03	0
Copper	0.0189	1.19E-04	0
Lead	0.0356	7.11E-04	0
Nickel	0.0137	5.88E-04	0
Selenium	0.0011	1.45E-04	0
Silver	0.0007	9.22E-05	0
Thallium	0.0012	1.58E-04	0
Zinc	0.2031	8.33E-04	0

Pore Water Pollutant Concentrations -GOM
Shallow Water Development
BAT Option 2

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.0159	1.27E-03	
Fluorene	0.0087	3.54E-04	0
Phenanthrene	0.0206	2.33E-04	
Phenol	0.0001	6.37E-04	0
Priority Pollutants, Metals			
Cadmium	0.0023	2.57E-04	0
Mercury	0.0002	3.82E-06	0
Antimony	0.0121	1.57E-03	0
Arsenic	0.0151	7.54E-05	0
Berylium	0.0015	1.93E-04	
Chromium	0.5095	1.73E-02	0
Copper	0.0397	2.50E-04	0
Lead	0.0745	1.49E-03	0
Nickel	0.0287	1.23E-03	0
Selenium	0.0023	3.04E-04	0
Silver	0.0015	1.93E-04	0
Thallium	0.0025	3.31E-04	0
Zinc	0.4256	1.75E-03	0

Pore Water Pollutant Concentrations - GOM
Deep Water Development
BAT Option 2

Pore Water Pollutant Concentrations - GOM
Deep Water Exploratory
BAT Option 2

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics						
Naphthalene	0.0115	9.17E-04		0.0256	2.04E-03	
Fluorene	0.0063	2.56E-04	0	0.0140	5.68E-04	0
Phenanthrene	0.0149	1.68E-04		0.0331	3.74E-04	
Phenol	0.0000	1.43E-04	0	0.0001	1.02E-03	0
Priority Pollutants, Metals						
Cadmium	0.0005	5.77E-05	0	0.0037	4.12E-04	0
Mercury	0.0000	8.58E-07	0	0.0003	6.13E-06	0
Antimony	0.0027	3.53E-04	0	0.0194	2.53E-03	0
Arsenic	0.0034	1.69E-05	0	0.0242	1.21E-04	0
Berylium	0.0003	4.34E-05		0.0024	3.10E-04	
Chromium	0.1145	3.89E-03	0	0.8180	2.78E-02	0
Copper	0.0089	5.62E-05	0	0.0637	4.02E-04	0
Lead	0.0167	3.35E-04	0	0.1196	2.39E-03	0
Nickel	0.0064	2.77E-04	0	0.0460	1.98E-03	0
Selenium	0.0005	6.82E-05	0	0.0037	4.87E-04	0
Silver	0.0003	4.34E-05	0	0.0024	3.10E-04	0.00
Thallium	0.0006	7.44E-05	0	0.0041	5.32E-04	0
Zinc	0.0162	6.64E-05	0	0.6834	2.80E-03	0

APPENDIX 4-5

COOK INLET, ALASKA
SEDIMENT PORE WATER QUALITY ANALYSIS

Pore Water Pollutant Concentrations - AK
Shallow Water Development
Baseline (zero discharge)

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.0000	0.0000		0
Fluorene	0.0000	0.0000	0	
Phenanthrene	0.0000	0.0000		
Phenol	0.0000	0.0000	0	0
Priority Pollutants, Metals				
Cadmium	0.0000	0.0000	0	0
Mercury	0.0000	0.0000	0	0
Antimony	0.0000	0.0000	0	0
Arsenic	0.0000	0.0000	0	0
Berylium	0.0000	0.0000		0
Chromium	0.0000	0.0000	0	0
Copper	0.0000	0.0000	0	0
Lead	0.0000	0.0000	0	0
Nickel	0.0000	0.0000	0	0
Selenium	0.0000	0.0000	0	0
Silver	0.0000	0.0000	0.00	0
Thallium	0.0000	0.0000	0	0
Zinc	0.0000	0.0000	0	0

Pore Water Pollutant Concentrations - AK
Shallow Water Development
BAT Option 2

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.0102	8.14E-04		0
Fluorene	0.0056	2.27E-04	0	
Phenanthrene	0.0132	1.49E-04		
Phenol	0.0000	4.08E-04	0	0
Priority Pollutants, Metals				
Cadmium	0.0015	1.65E-04	0	0
Mercury	0.0001	2.45E-06	0	0
Antimony	0.0078	1.01E-03	0	0
Arsenic	0.0097	4.83E-05	0	0
Beryllium	0.0010	1.24E-04		0
Chromium	0.3265	1.11E-02	0	0
Copper	0.0254	1.60E-04	0	0
Lead	0.0478	9.55E-04	0	0
Nickel	0.0184	7.90E-04	0	0
Selenium	0.0015	1.95E-04	0	0
Silver	0.0010	1.24E-04	0	0
Thallium	0.0016	2.12E-04	0	0
Zinc	0.2728	1.12E-03	0	0

Pore Water Pollutant Concentrations - AK
Shallow Water Development
BAT Option 1

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Water Column Exceedances of AK State Standards
Priority Pollutant Organics				
Naphthalene	0.0111	8.85E-04		0
Fluorene	0.0061	2.47E-04	0	
Phenanthrene	0.0144	1.63E-04		
Phenol	0.0000	4.44E-04	0	0
Priority Pollutants, Metals				
Cadmium	0.0016	1.79E-04	0	0
Mercury	0.0001	2.66E-06	0	0
Antimony	0.0084	1.10E-03	0	0
Arsenic	0.0105	5.25E-05	0	0
Beryllium	0.0010	1.35E-04		0
Chromium	0.3551	1.21E-02	0	0
Copper	0.0277	1.74E-04	0	0
Lead	0.0519	1.04E-03	0	0
Nickel	0.0200	8.59E-04	0	0
Selenium	0.0016	2.12E-04	0	0
Silver	0.0010	1.35E-04	0	0
Thallium	0.0018	2.31E-04	0	0
Zinc	0.2967	1.22E-03	0	0

APPENDIX 4-6

OFFSHORE CALIFORNIA
SEDIMENT PORE WATER QUALITY ANALYSIS

Pore Water Pollutant Concentrations - CA
Shallow Water Development
Baseline (zero discharge)

Pore Water Pollutant Concentrations - CA
Deep Water Development
Baseline (zero discharge)

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria		Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics							
Naphthalene	0.0000	0.0000			0.0000	0.0000	
Fluorene	0.0000	0.0000	0		0.0000	0.0000	0
Phenanthrene	0.0000	0.0000			0.0000	0.0000	
Phenol	0.0000	0.0000	0		0.0000	0.0000	0
Priority Pollutants, Metals							
Cadmium	0.0000	0.0000	0		0.0000	0.0000	0
Mercury	0.0000	0.0000	0		0.0000	0.0000	0
Antimony	0.0000	0.0000	0		0.0000	0.0000	0
Arsenic	0.0000	0.0000	0		0.0000	0.0000	0
Berylium	0.0000	0.0000			0.0000	0.0000	
Chromium	0.0000	0.0000	0		0.0000	0.0000	0.00
Copper	0.0000	0.0000	0		0.0000	0.0000	0
Lead	0.0000	0.0000	0		0.0000	0.0000	0
Nickel	0.0000	0.0000	0		0.0000	0.0000	0
Selenium	0.0000	0.0000	0		0.0000	0.0000	0
Silver	0.0000	0.0000	0.00		0.0000	0.0000	0.00
Thallium	0.0000	0.0000	0		0.0000	0.0000	0.00
Zinc	0.0000	0.0000	0		0.0000	0.0000	0

Pore Water Pollutant Concentrations - CA
Shallow Water Development
BAT Option 1

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.0111	8.85E-04	
Fluorene	0.0061	2.47E-04	0
Phenanthrene	0.0144	1.63E-04	
Phenol	0.0000	4.44E-04	0
Priority Pollutants, Metals			
Cadmium	0.0016	1.79E-04	0
Mercury	0.0001	2.66E-06	0
Antimony	0.0084	1.10E-03	0
Arsenic	0.0105	5.25E-05	0
Berylium	0.0010	1.35E-04	
Chromium	0.3551	1.21E-02	0
Copper	0.0277	1.74E-04	0
Lead	0.0519	1.04E-03	0
Nickel	0.0200	8.59E-04	0
Selenium	0.0016	2.12E-04	0
Silver	0.0010	1.35E-04	0
Thallium	0.0018	2.31E-04	0
Zinc	0.2967	1.22E-03	0

Pore Water Pollutant Concentrations - CA
Deep Water Development
BAT Option 1

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics			
Naphthalene	0.0168	1.34E-03	
Fluorene	0.0092	3.74E-04	0
Phenanthrene	0.0218	2.46E-04	
Phenol	0.0001	6.72E-04	0
Priority Pollutants, Metals			
Cadmium	0.0025	2.71E-04	0
Mercury	0.0002	4.03E-06	0
Antimony	0.0128	1.66E-03	0
Arsenic	0.0159	7.95E-05	0
Berylium	0.0016	2.04E-04	
Chromium	0.5374	1.83E-02	0
Copper	0.0419	2.64E-04	0
Lead	0.0786	1.57E-03	0
Nickel	0.0302	1.30E-03	0
Selenium	0.0025	3.20E-04	0
Silver	0.0016	2.04E-04	0
Thallium	0.0027	3.49E-04	0
Zinc	0.4490	1.84E-03	0

Pore Water Pollutant Concentrations - CA
Shallow Water Development
BAT Option 2

Pore Water Pollutant Concentrations - CA
Deep Water Development
BAT Option 2

Pollutant Name	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria	Pollutant Sediment Conc. At 100 m (mg/kg)	Pore Water Conc. At 100 meters (mg/l)	Water Column Exceedances of Federal Criteria
Priority Pollutant Organics						
Naphthalene	0.0102	8.14E-04		0.0155	1.23E-03	
Fluorene	0.0056	2.27E-04	0	0.0084	3.43E-04	0
Phenanthrene	0.0132	1.49E-04		0.0200	2.26E-04	
Phenol	0.0000	4.08E-04	0	0.0000	1.92E-04	0
Priority Pollutants, Metals						
Cadmium	0.0015	1.65E-04	0	0.0007	7.75E-05	0
Mercury	0.0001	2.45E-06	0	0.0001	1.15E-06	0
Antimony	0.0078	1.01E-03	0	0.0037	4.75E-04	0
Arsenic	0.0097	4.83E-05	0	0.0045	2.27E-05	0
Berylium	0.0010	1.24E-04		0.0004	5.83E-05	
Chromium	0.3265	1.11E-02	0	0.1537	5.23E-03	0
Copper	0.0254	1.60E-04	0	0.0120	7.55E-05	0
Lead	0.0478	9.55E-04	0	0.0225	4.50E-04	0
Nickel	0.0184	7.90E-04	0	0.0086	3.72E-04	0
Selenium	0.0015	1.95E-04	0	0.0007	9.16E-05	0
Silver	0.0010	1.24E-04	0	0.0004	5.83E-05	0
Thallium	0.0016	2.12E-04	0	0.0008	9.99E-05	0
Zinc	0.2728	1.12E-03	0	0.4128	1.69E-03	0

APPENDIX 4-7

GULF OF MEXICO
SEDIMENT GUIDELINES ANALYSIS

Sediment Guidelines Analysis - GOM
Baseline

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	3.94E-01	9.3	4.24E-02
Copper	3.84E-01	3.1	1.24E-01
Lead	2.29E+00	8.1	2.82E-01
Nickel	1.89E+00	8.2	2.31E-01
Zinc	2.68E+00	81	3.30E-02
Sum =			**7.12E-01**
Shallow Water Exploratory Model Well			
Cadmium	8.26E-01	9.3	8.88E-02
Copper	8.04E-01	3.1	2.59E-01
Lead	4.79E+00	8.1	5.91E-01
Nickel	3.96E+00	8.2	4.83E-01
Zinc	5.61E+00	81	6.92E-02
Sum =			**1.49E+00**
Deep Water Development Model Well			
Cadmium	5.96E-01	9.3	6.41E-02
Copper	5.80E-01	3.1	1.87E-01
Lead	3.46E+00	8.1	4.27E-01
Nickel	2.86E+00	8.2	3.49E-01
Zinc	4.05E+00	81	5.00E-02
Sum =			**1.08E+00**
Deep Water Exploratory Model Well			
Cadmium	1.33E+00	9.3	1.43E-01
Copper	1.29E+00	3.1	4.16E-01
Lead	7.69E+00	8.1	9.49E-01
Nickel	6.36E+00	8.2	7.76E-01
Zinc	9.01E+00	81	1.11E-01
Sum =			**2.40E+00**

Sediment Guidelines Analysis - GOM
BAT Option 1

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.33E-01	9.3	1.43E-02
Copper	1.30E-01	3.1	4.19E-02
Lead	7.73E-01	8.1	9.55E-02
Nickel	6.40E-01	8.2	7.80E-02
Zinc	9.06E-01	81	1.12E-02
Sum =			**2.41E-01**
Shallow Water Exploratory Model Well			
Cadmium	2.79E-01	9.3	3.00E-02
Copper	2.72E-01	3.1	8.77E-02
Lead	1.62E+00	8.1	2.00E-01
Nickel	1.34E+00	8.2	1.63E-01
Zinc	1.90E+00	81	2.34E-02
Sum =			**5.05E-01**
Deep Water Development Model Well			
Cadmium	2.02E-01	9.3	2.17E-02
Copper	1.96E-01	3.1	6.34E-02
Lead	1.17E+00	8.1	1.44E-01
Nickel	9.68E-01	8.2	1.18E-01
Zinc	1.37E+00	81	1.69E-02
Sum =			**3.64E-01**
Deep Water Exploratory Model Well			
Cadmium	4.49E-01	9.3	4.82E-02
Copper	4.37E-01	3.1	1.41E-01
Lead	2.60E+00	8.1	3.21E-01
Nickel	2.15E+00	8.2	2.62E-01
Zinc	1.03E+00	81	1.27E-02
Sum =			**7.86E-01**

Sediment Guidelines Analysis - GOM
BAT Option 2

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.23E-01	9.3	1.32E-02
Copper	1.19E-01	3.1	3.85E-02
Lead	7.11E-01	8.1	8.78E-02
Nickel	5.88E-01	8.2	7.17E-02
Zinc	8.33E-01	81	1.03E-02
Sum =			**2.21E-01**
Shallow Water Exploratory Model Well			
Cadmium	2.57E-01	9.3	2.76E-02
Copper	2.50E-01	3.1	8.07E-02
Lead	1.49E+00	8.1	1.84E-01
Nickel	1.23E+00	8.2	1.50E-01
Zinc	1.75E+00	81	2.15E-02
Sum =			**4.64E-01**
Deep Water Development Model Well			
Cadmium	5.77E-02	9.3	6.21E-03
Copper	5.62E-02	3.1	1.81E-02
Lead	3.35E-01	8.1	4.13E-02
Nickel	2.77E-01	8.2	3.38E-02
Zinc	6.64E-02	81	8.20E-04
Sum =			**1.00E-01**
Deep Water Exploratory Model Well			
Cadmium	4.12E-01	9.3	4.43E-02
Copper	4.02E-01	3.1	1.30E-01
Lead	2.39E+00	8.1	2.95E-01
Nickel	1.98E+00	8.2	2.41E-01
Zinc	2.80E+00	81	3.46E-02
Sum =			**7.45E-01**

APPENDIX 4-8

COOK INLET, ALASKA
SEDIMENT GUIDELINES ANALYSIS

Sediment Guidelines Analysis - AK
Baseline (Zero Discharge)

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	0.00E+00	9.3	0.00E+00
Copper	0.00E+00	3.1	0.00E+00
Lead	0.00E+00	8.1	0.00E+00
Nickel	0.00E+00	8.2	0.00E+00
Zinc	0.00E+00	81	0.00E+00
Sum =			**0.00E+00**

Sediment Guidelines Analysis - AK
BAT Option 1

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.79E-01	9.3	1.93E-02
Copper	1.74E-01	3.1	5.62E-02
Lead	1.04E+00	8.1	1.28E-01
Nickel	8.59E-01	8.2	1.05E-01
Zinc	1.22E+00	81	1.50E-02
Sum =			**3.23E-01**

Sediment Guidelines Analysis - AK
BAT Option 2

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.65E-01	9.3	1.77E-02
Copper	1.60E-01	3.1	5.17E-02
Lead	9.55E-01	8.1	1.18E-01
Nickel	7.90E-01	8.2	9.63E-02
Silver	1.24E-01	81	
Zinc	1.12E+00		1.38E-02
Sum =			**2.97E-01**

APPENDIX 4-9

OFFSHORE CALIFORNIA
SEDIMENT GUIDELINES ANALYSIS

Sediment Guidelines Analysis - CA
Baseline (Zero Discharge)

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	0.00E+00	9.3	0.00E+00
Copper	0.00E+00	3.1	0.00E+00
Lead	0.00E+00	8.1	0.00E+00
Nickel	0.00E+00	8.2	0.00E+00
Zinc	0.00E+00	81	0.00E+00
Sum =			**0.00E+00**
Deep Water Development Model Well			
Cadmium	0.00E+00	9.3	0.00E+00
Copper	0.00E+00	3.1	0.00E+00
Lead	0.00E+00	8.1	0.00E+00
Nickel	0.00E+00	8.2	0.00E+00
Zinc	0.00E+00	81	0.00E+00
Sum =			**0.00E+00**

Sediment Guidelines Analysis - CA
BAT Option 1

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.79E-01	9.3	1.93E-02
Copper	1.74E-01	3.1	5.62E-02
Lead	1.04E+00	8.1	1.28E-01
Nickel	8.59E-01	8.2	1.05E-01
Zinc	1.22E+00	81	1.50E-02
Sum =			**3.23E-01**
Deep Water Development Model Well			
Cadmium	2.71E-01	9.3	2.91E-02
Copper	2.64E-01	3.1	8.51E-02
Lead	1.57E+00	8.1	1.94E-01
Nickel	1.30E+00	8.2	1.59E-01
Zinc	1.84E+00	81	2.27E-02
Sum =			**4.90E-01**

Sediment Guidelines Analysis - CA
BAT Option 2

Metal	Pore Water Conc. At 100 m (ug/l)	FCV (ug/l)	Ratio of Conc./FCV
Shallow Water Development Model Well			
Cadmium	1.65E-01	9.3	1.77E-02
Copper	1.60E-01	3.1	5.17E-02
Lead	9.55E-01	8.1	1.18E-01
Nickel	7.90E-01	8.2	9.63E-02
Silver	1.24E-01	81	
Zinc	1.12E+00		1.38E-02
Sum =			**2.97E-01**
Deep Water Development Model Well		9.3	
Cadmium	7.75E-02	3.1	8.33E-03
Copper	7.55E-02	8.1	2.43E-02
Lead	4.50E-01	8.2	5.55E-02
Nickel	3.72E-01	81	4.53E-02
Silver	5.83E-02		
Zinc	1.69E+00		2.09E-02
Sum =			**1.54E-01**

APPENDIX 5-1

OFFSHORE CALIFORNIA
HUMAN HEALTH RISK ANALYSIS

Recreational Finfish Tissue Pollutant Concentrations - CA Baseline (Zero Discharge)

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.0000	0.00E+00	0.00E+00	0.00E+00
Fluorene	0.0000	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	0.0000	0.00E+00	0.00E+00	0.00E+00
Phenol	0.0000	0.00E+00	0.00E+00	0.00E+00
Priority Pollutants, Metals				
Cadmium	0.0000	0.00E+00	0.00E+00	0.00E+00
Mercury	0.0000	0.00E+00	0.00E+00	0.00E+00
Antimony	0.0000	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.0000	0.00E+00	0.00E+00	0.00E+00
Berylium	0.0000	0.00E+00	0.00E+00	0.00E+00
Chromium	0.0000	0.00E+00	0.00E+00	0.00E+00
Copper	0.0000	0.00E+00	0.00E+00	0.00E+00
Lead	0.0000	0.00E+00	0.00E+00	0.00E+00
Nickel	0.0000	0.00E+00	0.00E+00	0.00E+00
Selenium	0.0000	0.00E+00	0.00E+00	0.00E+00
Silver	0.0000	0.00E+00	0.00E+00	0.00E+00
Thallium	0.0000	0.00E+00	0.00E+00	0.00E+00
Zinc	0.0000	0.00E+00	0.00E+00	0.00E+00
Non-Conventional Pollutants				
Aluminum	0.0000	0.00E+00	0.00E+00	0.00E+00
Barium	0.0000	0.00E+00	0.00E+00	
Iron	0.0000	0.00E+00	0.00E+00	
Tin	0.0000	0.00E+00	0.00E+00	
Titanium	0.0000	0.00E+00	0.00E+00	

Recreational Finfish Health Risks - CA
Baseline (Zero Discharge)

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	0.00E+00	0.00E+00	0.00E+00		
Fluorene	0.00E+00	0.00E+00	0.00E+00		
Phenanthrene	0.00E+00	0.00E+00			
Phenol	0.00E+00	0.00E+00	0.00E+00		
Priority Pollutants, Metals					
Cadmium	0.00E+00	0.00E+00	0.00E+00		
Mercury	0.00E+00	0.00E+00	0.00E+00		
Antimony	0.00E+00	0.00E+00	0.00E+00		
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Berylium	0.00E+00	0.00E+00			
Chromium	0.00E+00	0.00E+00	0.00E+00		
Copper	0.00E+00	0.00E+00			
Lead	0.00E+00	0.00E+00			
Nickel	0.00E+00	0.00E+00	0.00E+00		
Selenium	0.00E+00	0.00E+00	0.00E+00		
Silver	0.00E+00	0.00E+00	0.00E+00		
Thallium	0.00E+00	0.00E+00	0.00E+00		
Zinc	0.00E+00	0.00E+00	0.00E+00		
Non-Conventional Pollutants					
Aluminum	0.00E+00	0.00E+00			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - CA
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4987	7.30E-05	3.06E-07	1.30E-04
Fluorene	0.2720	3.98E-05	1.67E-07	5.00E-06
Phenanthrene	0.6451	9.44E-05	3.95E-07	1.04E-03
Phenol	0.0018	2.57E-07	1.08E-09	1.51E-09
Priority Pollutants, Metals				
Cadmium	0.0730	1.18E-06	4.92E-09	3.15E-07
Mercury	0.0066	1.75E-08	7.32E-11	4.03E-07
Antimony	0.3783	7.20E-06	3.02E-08	3.02E-08
Arsenic	0.4712	3.45E-07	1.44E-09	6.36E-08
Berylium	0.0465	8.84E-07	3.70E-09	7.04E-08
Chromium	15.9289	7.93E-05	3.32E-07	5.31E-06
Copper	1.2411	1.14E-06	4.79E-09	1.73E-07
Lead	2.3296	6.82E-06	2.86E-08	1.40E-06
Nickel	0.8960	5.64E-06	2.36E-08	1.11E-06
Selenium	0.0730	1.39E-06	5.82E-09	2.79E-08
Silver	0.0465	8.84E-07	3.70E-09	1.85E-09
Thallium	0.0796	1.52E-06	6.35E-09	7.36E-07
Zinc	13.3072	7.99E-06	3.34E-08	1.57E-06
Non-Conventional Pollutants				
Aluminum	601.9718	8.81E-02	3.69E-04	8.52E-02
Barium	0.0730	1.07E-05	4.48E-08	
Iron	1018.4055	1.49E-01	6.24E-04	
Tin	0.9690	1.42E-04	5.94E-07	
Titanium	5.8074	8.50E-04	3.56E-06	

Recreational Finfish Health Risks - CA
BAT Option 1

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.30E-04	2.59E-07	1.30E-05		
Fluorene	5.00E-06	9.96E-09	2.49E-07		
Phenanthrene	1.04E-03	2.07E-06			
Phenol	1.51E-09	3.00E-12	5.00E-12		
Priority Pollutants, Metals					
Cadmium	3.15E-07	6.27E-10	6.27E-07		
Mercury	4.03E-07	8.02E-10	2.67E-06		
Antimony	3.02E-08	6.00E-11	1.50E-07		
Arsenic	6.36E-08	1.26E-10	4.22E-07	3.61E-11	8.43E-11
Berylium	7.04E-08	1.40E-10			
Chromium	5.31E-06	1.06E-08	3.52E-06		
Copper	1.73E-07	3.43E-10			
Lead	1.40E-06	2.79E-09			
Nickel	1.11E-06	2.21E-09	1.10E-07		
Selenium	2.79E-08	5.56E-11	1.11E-08		
Silver	1.85E-09	3.68E-12	7.37E-10		
Thallium	7.36E-07	1.47E-09	1.83E-05		
Zinc	1.57E-06	3.13E-09	1.04E-08		
Non-Conventional Pollutants					
Aluminum	8.52E-02	1.70E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - CA
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4750	6.95E-05	2.91E-07	1.24E-04
Fluorene	0.2591	3.79E-05	1.59E-07	4.76E-06
Phenanthrene	0.6145	9.00E-05	3.77E-07	9.91E-04
Phenol	0.0017	2.45E-07	1.02E-09	1.43E-09
Priority Pollutants, Metals				
Cadmium	0.0696	1.12E-06	4.69E-09	3.00E-07
Mercury	0.0063	1.67E-08	6.98E-11	3.84E-07
Antimony	0.3604	6.86E-06	2.87E-08	2.87E-08
Arsenic	0.4489	3.29E-07	1.38E-09	6.05E-08
Berylium	0.0443	8.42E-07	3.53E-09	6.70E-08
Chromium	15.1752	7.55E-05	3.16E-07	5.06E-06
Copper	1.1824	1.09E-06	4.57E-09	1.64E-07
Lead	2.2194	6.50E-06	2.72E-08	1.33E-06
Nickel	0.8536	5.37E-06	2.25E-08	1.06E-06
Selenium	0.0696	1.32E-06	5.54E-09	2.66E-08
Silver	0.0443	8.42E-07	3.53E-09	1.76E-09
Thallium	0.0759	1.44E-06	6.05E-09	7.01E-07
Zinc	12.6776	7.61E-06	3.19E-08	1.50E-06
Non-Conventional Pollutants				
Aluminum	573.4885	8.40E-02	3.52E-04	8.12E-02
Barium	37179.1542	5.44E+00	2.28E-02	
Iron	970.2178	1.42E-01	5.95E-04	
Tin	0.9232	1.35E-04	5.66E-07	
Titanium	5.5326	8.10E-04	3.39E-06	

Recreational Finfish Health Risks - CA
BAT Option 2

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.24E-04	2.47E-07	1.23E-05		
Fluorene	4.76E-06	9.48E-09	2.37E-07		
Phenanthrene	9.91E-04	1.97E-06			
Phenol	1.43E-09	2.86E-12	4.76E-12		
Priority Pollutants, Metals					
Cadmium	3.00E-07	5.97E-10	5.97E-07		
Mercury	3.84E-07	7.64E-10	2.55E-06		
Antimony	2.87E-08	5.72E-11	1.43E-07		
Arsenic	6.05E-08	1.20E-10	4.02E-07	3.44E-11	8.03E-11
Berylium	6.70E-08	1.33E-10			
Chromium	5.06E-06	1.01E-08	3.36E-06		
Copper	1.64E-07	3.27E-10			
Lead	1.33E-06	2.65E-09			
Nickel	1.06E-06	2.10E-09	1.05E-07		
Selenium	2.66E-08	5.29E-11	1.06E-08		
Silver	1.76E-09	3.51E-12	7.02E-10		
Thallium	7.01E-07	1.40E-09	1.74E-05		
Zinc	1.50E-06	2.98E-09	9.93E-09		
Non-Conventional Pollutants					
Aluminum	8.12E-02	1.62E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - CA
Shallow Water Development Model Well
Baseline (Zero Discharge)

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/l)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenol	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Priority Pollutants, Metals				
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Berylium	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-Conventional Pollutants				
Aluminum	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	
Iron	0.00E+00	0.00E+00	0.00E+00	
Tin	0.00E+00	0.00E+00	0.00E+00	
Titanium	0.00E+00	0.00E+00	0.00E+00	

Commercial Shrimp Health Risks - CA
Shallow Water Development Model Well
Baseline (Zero Discharge)

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	0.00E+00	0.00E+00	0.00E+00		
Fluorene	0.00E+00	0.00E+00	0.00E+00		
Phenanthrene	0.00E+00	0.00E+00			
Phenol	0.00E+00	0.00E+00	0.00E+00		
Priority Pollutants, Metals					
Cadmium	0.00E+00	0.00E+00	0.00E+00		
Mercury	0.00E+00	0.00E+00	0.00E+00		
Antimony	0.00E+00	0.00E+00	0.00E+00		
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Berylium	0.00E+00	0.00E+00			
Chromium	0.00E+00	0.00E+00	0.00E+00		
Copper	0.00E+00	0.00E+00			
Lead	0.00E+00	0.00E+00			
Nickel	0.00E+00	0.00E+00	0.00E+00		
Selenium	0.00E+00	0.00E+00	0.00E+00		
Silver	0.00E+00	0.00E+00	0.00E+00		
Thallium	0.00E+00	0.00E+00	0.00E+00		
Zinc	0.00E+00	0.00E+00	0.00E+00		
Non-Conventional Pollutants					
Aluminum	0.00E+00	0.00E+00			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - CA
Shallow Water Development Model Well
BAT Option 1

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	5.42E+04	8.16E-04	7.10E-05	3.33E-04
Fluorene	2.96E+04	4.45E-04	1.98E-05	6.53E-06
Phenanthrene	7.02E+04	1.06E-03	1.30E-05	3.77E-04
Phenol	1.91E+02	2.87E-06	3.56E-05	5.48E-07
Priority Pollutants, Metals				
Cadmium	7.94E+03	1.19E-04	1.44E-05	1.01E-05
Mercury	7.22E+02	1.09E-05	2.14E-07	1.29E-05
Antimony	4.11E+04	6.19E-04	8.79E-05	9.67E-07
Arsenic	5.12E+04	7.71E-04	4.21E-06	2.04E-06
Berylium	5.05E+03	7.60E-05	1.08E-05	2.26E-06
Chromium	1.73E+06	2.61E-02	9.68E-04	1.70E-04
Copper	1.35E+05	2.03E-03	1.40E-05	5.53E-06
Lead	2.53E+05	3.81E-03	8.33E-05	4.49E-05
Nickel	9.74E+04	1.47E-03	6.89E-05	3.56E-05
Selenium	7.94E+03	1.19E-04	1.70E-05	8.96E-07
Silver	5.05E+03	7.60E-05	1.08E-05	5.94E-08
Thallium	8.66E+03	1.30E-04	1.85E-05	2.36E-05
Zinc	1.45E+06	2.18E-02	9.75E-05	5.04E-05
Non-Conventional Pollutants				
Aluminum	6.55E+07	9.85E-01	1.40E-01	3.55E-01
Barium	4.24E+09	6.39E+01	1.46E-01	
Iron	1.11E+08	1.67E+00	2.37E-01	
Tin	1.05E+05	1.59E-03	2.25E-04	
Titanium	6.32E+05	9.50E-03	1.35E-03	

Commercial Shrimp Health Risks - CA
Shallow Water Development Model Well
BAT Option 1

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	3.33E-04	1.52E-12	7.58E-11		
Fluorene	6.53E-06	2.98E-14	7.44E-13		
Phenanthrene	3.77E-04	1.72E-12			
Phenol	5.48E-07	2.50E-15	4.16E-15		
Priority Pollutants, Metals					
Cadmium	1.01E-05	4.61E-14	4.61E-11		
Mercury	1.29E-05	5.89E-14	1.96E-10		
Antimony	9.67E-07	4.41E-15	1.10E-11		
Arsenic	2.04E-06	9.29E-15	3.10E-11	2.65E-15	6.19E-15
Berylium	2.26E-06	1.03E-14			
Chromium	1.70E-04	7.76E-13	2.59E-10		
Copper	5.53E-06	2.52E-14			
Lead	4.49E-05	2.05E-13			
Nickel	3.56E-05	1.62E-13	8.11E-12		
Selenium	8.96E-07	4.08E-15	8.16E-13		
Silver	5.94E-08	2.71E-16	5.41E-14		
Thallium	2.36E-05	1.08E-13	1.35E-09		
Zinc	5.04E-05	2.30E-13	7.66E-13		
Non-Conventional Pollutants					
Aluminum	3.55E-01	1.62E-09			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - CA
Shallow Water Development Model Well
BAT Option 2

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	4.99E+04	7.50E-04	6.52E-05	3.06E-04
Fluorene	2.72E+04	4.09E-04	1.82E-05	6.01E-06
Phenanthrene	6.45E+04	9.71E-04	1.20E-05	3.47E-04
Phenol	1.76E+02	2.64E-06	3.27E-05	5.04E-07
Priority Pollutants, Metals				
Cadmium	7.30E+03	1.10E-04	1.32E-05	9.29E-06
Mercury	6.64E+02	9.98E-06	1.96E-07	1.19E-05
Antimony	3.78E+04	5.69E-04	8.08E-05	8.89E-07
Arsenic	4.71E+04	7.09E-04	3.87E-06	1.87E-06
Berylium	4.65E+03	6.99E-05	9.92E-06	2.07E-06
Chromium	1.59E+06	2.40E-02	8.90E-04	1.57E-04
Copper	1.24E+05	1.87E-03	1.28E-05	5.09E-06
Lead	2.33E+05	3.50E-03	7.66E-05	4.13E-05
Nickel	8.96E+04	1.35E-03	6.33E-05	3.27E-05
Selenium	7.30E+03	1.10E-04	1.56E-05	8.23E-07
Silver	4.65E+03	6.99E-05	9.92E-06	5.46E-08
Thallium	7.96E+03	1.20E-04	1.70E-05	2.17E-05
Zinc	1.33E+06	2.00E-02	8.97E-05	4.64E-05
Non-Conventional Pollutants				
Aluminum	6.02E+07	9.06E-01	1.29E-01	3.27E-01
Barium	3.90E+09	5.87E+01	1.35E-01	
Iron	1.02E+08	1.53E+00	2.18E-01	
Tin	9.69E+04	1.46E-03	2.07E-04	
Titanium	5.81E+05	8.74E-03	1.24E-03	

Commercial Shrimp Health Risks - CA
Shallow Water Development Model Well
BAT Option 2

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	3.06E-04	1.39E-12	6.97E-11		
Fluorene	6.01E-06	2.74E-14	6.84E-13		
Phenanthrene	3.47E-04	1.58E-12			
Phenol	5.04E-07	2.30E-15	3.83E-15		
Priority Pollutants, Metals					
Cadmium	9.29E-06	4.23E-14	4.23E-11		
Mercury	1.19E-05	5.41E-14	1.80E-10		
Antimony	8.89E-07	4.05E-15	1.01E-11		
Arsenic	1.87E-06	8.54E-15	2.85E-11	2.44E-15	5.69E-15
Berylium	2.07E-06	9.45E-15			
Chromium	1.57E-04	7.14E-13	2.38E-10		
Copper	5.09E-06	2.32E-14			
Lead	4.13E-05	1.88E-13			
Nickel	3.27E-05	1.49E-13	7.46E-12		
Selenium	8.23E-07	3.75E-15	7.51E-13		
Silver	5.46E-08	2.49E-16	4.98E-14		
Thallium	2.17E-05	9.89E-14	1.24E-09		
Zinc	4.64E-05	2.11E-13	7.04E-13		
Non-Conventional Pollutants					
Aluminum	3.27E-01	1.49E-09			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

APPENDIX 5-2

GULF OF MEXICO
RECREATIONAL FISHERIES
HUMAN HEALTH RISK ANALYSIS

Recreational Finfish Tissue Pollutant Concentrations - GOM Baseline

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	1.0995	6.16E-05	6.80E-07	2.90E-04
Fluorene	0.5997	3.36E-05	3.71E-07	1.11E-05
Phenanthrene	1.4225	7.96E-05	8.80E-07	2.31E-03
Phenol	0.0039	2.17E-07	2.39E-09	3.35E-09
Priority Pollutants, Metals				
Cadmium	0.1610	9.92E-07	1.10E-08	7.01E-07
Mercury	0.0146	1.48E-08	1.63E-10	8.96E-07
Antimony	0.8342	6.07E-06	6.71E-08	6.71E-08
Arsenic	1.0391	2.91E-07	3.21E-09	1.41E-07
Berylium	0.1024	7.46E-07	8.24E-09	1.57E-07
Chromium	35.1248	6.69E-05	7.39E-07	1.18E-05
Copper	2.7368	9.65E-07	1.07E-08	3.84E-07
Lead	5.1370	5.75E-06	6.36E-08	3.11E-06
Nickel	1.9758	4.76E-06	5.26E-08	2.47E-06
Selenium	0.1610	1.17E-06	1.29E-08	6.21E-08
Silver	0.1024	7.46E-07	8.24E-09	4.12E-09
Thallium	0.1756	1.28E-06	1.41E-08	1.64E-06
Zinc	29.3439	6.74E-06	7.44E-08	3.50E-06
Non-Conventional Pollutants				
Aluminum	1327.4109	7.43E-02	8.21E-04	1.90E-01
Barium	86055.8132	4.82E+00	5.32E-02	
Iron	2245.6908	1.26E-01	1.39E-03	
Tin	2.1368	1.20E-04	1.32E-06	
Titanium	12.8059	7.17E-04	7.92E-06	

Recreational Finfish Health Risks - GOM
Baseline

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	2.90E-04	5.77E-07	2.88E-05		
Fluorene	1.11E-05	2.21E-08	5.54E-07		
Phenanthrene	2.31E-03	4.61E-06			
Phenol	3.35E-09	6.67E-12	1.11E-11		
Priority Pollutants, Metals					
Cadmium	7.01E-07	1.40E-09	1.40E-06		
Mercury	8.96E-07	1.78E-09	5.95E-06		
Antimony	6.71E-08	1.34E-10	3.34E-07		
Arsenic	1.41E-07	2.81E-10	9.38E-07	8.04E-11	1.88E-10
Berylium	1.57E-07	3.12E-10			
Chromium	1.18E-05	2.35E-08	7.84E-06		
Copper	3.84E-07	7.64E-10			
Lead	3.11E-06	6.20E-09			
Nickel	2.47E-06	4.92E-09	2.46E-07		
Selenium	6.21E-08	1.24E-10	2.47E-08		
Silver	4.12E-09	8.20E-12	1.64E-09		
Thallium	1.64E-06	3.26E-09	4.08E-05		
Zinc	3.50E-06	6.96E-09	2.32E-08		
Non-Conventional Pollutants					
Aluminum	1.90E-01	3.77E-04			
Barium					
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - GOM
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4987	2.79E-05	3.08E-07	1.31E-04
Fluorene	0.2720	1.52E-05	1.68E-07	5.05E-06
Phenanthrene	0.6451	3.61E-05	3.99E-07	1.05E-03
Phenol	0.0018	9.83E-08	1.09E-09	1.52E-09
Priority Pollutants, Metals				
Cadmium	0.0730	4.50E-07	4.97E-09	3.18E-07
Mercury	0.0066	6.69E-09	7.39E-11	4.06E-07
Antimony	0.3783	2.75E-06	3.04E-08	3.04E-08
Arsenic	0.4712	1.32E-07	1.46E-09	6.41E-08
Berylium	0.0465	3.38E-07	3.74E-09	7.10E-08
Chromium	15.9289	3.03E-05	3.35E-07	5.36E-06
Copper	1.2411	4.38E-07	4.84E-09	1.74E-07
Lead	2.3296	2.61E-06	2.88E-08	1.41E-06
Nickel	0.8960	2.16E-06	2.38E-08	1.12E-06
Selenium	0.0730	5.31E-07	5.87E-09	2.82E-08
Silver	0.0465	3.38E-07	3.74E-09	1.87E-09
Thallium	0.0796	5.80E-07	6.41E-09	7.43E-07
Zinc	13.3072	3.06E-06	3.38E-08	1.59E-06
Non-Conventional Pollutants				
Aluminum	601.9718	3.37E-02	3.72E-04	8.60E-02
Barium	0.0730	4.09E-06	4.52E-08	
Iron	1018.4055	5.70E-02	6.30E-04	
Tin	0.9690	5.43E-05	5.99E-07	
Titanium	5.8074	3.25E-04	3.59E-06	

Recreational Finfish Health Risks - GOM
BAT Option 1

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.31E-04	2.62E-07	1.31E-05		
Fluorene	5.05E-06	1.00E-08	2.51E-07		
Phenanthrene	1.05E-03	2.09E-06			
Phenol	1.52E-09	3.02E-12	5.04E-12		
Priority Pollutants, Metals					
Cadmium	3.18E-07	6.33E-10	6.33E-07		
Mercury	4.06E-07	8.09E-10	2.70E-06		
Antimony	3.04E-08	6.05E-11	1.51E-07		
Arsenic	6.41E-08	1.28E-10	4.25E-07	3.65E-11	8.51E-11
Berylium	7.10E-08	1.41E-10			
Chromium	5.36E-06	1.07E-08	3.56E-06		
Copper	1.74E-07	3.47E-10			
Lead	1.41E-06	2.81E-09			
Nickel	1.12E-06	2.23E-09	1.11E-07		
Selenium	2.82E-08	5.61E-11	1.12E-08		
Silver	1.87E-09	3.72E-12	7.44E-10		
Thallium	7.43E-07	1.48E-09	1.85E-05		
Zinc	1.59E-06	3.16E-09	1.05E-08		
Non-Conventional Pollutants					
Aluminum	8.60E-02	1.71E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - GOM
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4750	2.66E-05	2.94E-07	1.25E-04
Fluorene	0.2591	1.45E-05	1.60E-07	4.81E-06
Phenanthrene	0.6145	3.44E-05	3.80E-07	1.00E-03
Phenol	0.0017	9.36E-08	1.03E-09	1.45E-09
Priority Pollutants, Metals				
Cadmium	0.0696	4.28E-07	4.73E-09	3.03E-07
Mercury	0.0063	6.37E-09	7.04E-11	3.87E-07
Antimony	0.3604	2.62E-06	2.90E-08	2.90E-08
Arsenic	0.4489	1.26E-07	1.39E-09	6.11E-08
Berylium	0.0443	3.22E-07	3.56E-09	6.76E-08
Chromium	15.1752	2.89E-05	3.19E-07	5.11E-06
Copper	1.1824	4.17E-07	4.61E-09	1.66E-07
Lead	2.2194	2.49E-06	2.75E-08	1.35E-06
Nickel	0.8536	2.06E-06	2.27E-08	1.07E-06
Selenium	0.0696	5.06E-07	5.59E-09	2.68E-08
Silver	0.0443	3.22E-07	3.56E-09	1.78E-09
Thallium	0.0759	5.52E-07	6.10E-09	7.08E-07
Zinc	12.6776	2.91E-06	3.22E-08	1.51E-06
Non-Conventional Pollutants				
Aluminum	573.4885	3.21E-02	3.55E-04	8.20E-02
Barium	37179.1542	2.08E+00	2.30E-02	
Iron	970.2178	5.43E-02	6.00E-04	
Tin	0.9232	5.17E-05	5.71E-07	
Titanium	5.5326	3.10E-04	3.42E-06	

Recreational Finfish Health Risks - GOM
BAT Option 2

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.25E-04	2.49E-07	1.25E-05		
Fluorene	4.81E-06	9.57E-09	2.39E-07		
Phenanthrene	1.00E-03	1.99E-06			
Phenol	1.45E-09	2.88E-12	4.80E-12		
Priority Pollutants, Metals					
Cadmium	3.03E-07	6.03E-10	6.03E-07		
Mercury	3.87E-07	7.71E-10	2.57E-06		
Antimony	2.90E-08	5.77E-11	1.44E-07		
Arsenic	6.11E-08	1.22E-10	4.05E-07	3.47E-11	8.11E-11
Berylium	6.76E-08	1.35E-10			
Chromium	5.11E-06	1.02E-08	3.39E-06		
Copper	1.66E-07	3.30E-10			
Lead	1.35E-06	2.68E-09			
Nickel	1.07E-06	2.12E-09	1.06E-07		
Selenium	2.68E-08	5.34E-11	1.07E-08		
Silver	1.78E-09	3.54E-12	7.08E-10		
Thallium	7.08E-07	1.41E-09	1.76E-05		
Zinc	1.51E-06	3.01E-09	1.00E-08		
Non-Conventional Pollutants					
Aluminum	8.20E-02	1.63E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

APPENDIX 5-3

COOK INLET, ALASKA
RECREATIONAL FISHERIES
HUMAN HEALTH RISK ANALYSIS

Recreational Finfish Health Risks - AK
Baseline (Zero Discharge)

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	0.00E+00	0.00E+00	0.00E+00		
Fluorene	0.00E+00	0.00E+00	0.00E+00		
Phenanthrene	0.00E+00	0.00E+00			
Phenol	0.00E+00	0.00E+00	0.00E+00		
Priority Pollutants, Metals					
Cadmium	0.00E+00	0.00E+00	0.00E+00		
Mercury	0.00E+00	0.00E+00	0.00E+00		
Antimony	0.00E+00	0.00E+00	0.00E+00		
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Berylium	0.00E+00	0.00E+00			
Chromium	0.00E+00	0.00E+00	0.00E+00		
Copper	0.00E+00	0.00E+00			
Lead	0.00E+00	0.00E+00			
Nickel	0.00E+00	0.00E+00	0.00E+00		
Selenium	0.00E+00	0.00E+00	0.00E+00		
Silver	0.00E+00	0.00E+00	0.00E+00		
Thallium	0.00E+00	0.00E+00	0.00E+00		
Zinc	0.00E+00	0.00E+00	0.00E+00		
Non-Conventional Pollutants					
Aluminum	0.00E+00	0.00E+00			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - AK
Baseline (Zero Discharge)

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.0000	0.00E+00	0.00E+00	0.00E+00
Fluorene	0.0000	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	0.0000	0.00E+00	0.00E+00	0.00E+00
Phenol	0.0000	0.00E+00	0.00E+00	0.00E+00
Priority Pollutants, Metals				
Cadmium	0.0000	0.00E+00	0.00E+00	0.00E+00
Mercury	0.0000	0.00E+00	0.00E+00	0.00E+00
Antimony	0.0000	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.0000	0.00E+00	0.00E+00	0.00E+00
Berylium	0.0000	0.00E+00	0.00E+00	0.00E+00
Chromium	0.0000	0.00E+00	0.00E+00	0.00E+00
Copper	0.0000	0.00E+00	0.00E+00	0.00E+00
Lead	0.0000	0.00E+00	0.00E+00	0.00E+00
Nickel	0.0000	0.00E+00	0.00E+00	0.00E+00
Selenium	0.0000	0.00E+00	0.00E+00	0.00E+00
Silver	0.0000	0.00E+00	0.00E+00	0.00E+00
Thallium	0.0000	0.00E+00	0.00E+00	0.00E+00
Zinc	0.0000	0.00E+00	0.00E+00	0.00E+00
Non-Conventional Pollutants				
Aluminum	0.0000	0.00E+00	0.00E+00	0.00E+00
Barium	0.0000	0.00E+00	0.00E+00	
Iron	0.0000	0.00E+00	0.00E+00	
Tin	0.0000	0.00E+00	0.00E+00	
Titanium	0.0000	0.00E+00	0.00E+00	

Recreational Finfish Tissue Pollutant Concentrations - AK
BAT Option 1

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4987	9.39E-05	3.11E-07	1.33E-04
Fluorene	0.2720	5.12E-05	1.70E-07	5.09E-06
Phenanthrene	0.6451	1.21E-04	4.03E-07	1.06E-03
Phenol	0.0018	3.30E-07	1.10E-09	1.53E-09
Priority Pollutants, Metals				
Cadmium	0.0730	1.51E-06	5.01E-09	3.21E-07
Mercury	0.0066	2.25E-08	7.46E-11	4.10E-07
Antimony	0.3783	9.26E-06	3.07E-08	3.07E-08
Arsenic	0.4712	4.44E-07	1.47E-09	6.47E-08
Berylium	0.0465	1.14E-06	3.77E-09	7.16E-08
Chromium	15.9289	1.02E-04	3.38E-07	5.41E-06
Copper	1.2411	1.47E-06	4.88E-09	1.76E-07
Lead	2.3296	8.77E-06	2.91E-08	1.43E-06
Nickel	0.8960	7.25E-06	2.40E-08	1.13E-06
Selenium	0.0730	1.79E-06	5.92E-09	2.84E-08
Silver	0.0465	1.14E-06	3.77E-09	1.89E-09
Thallium	0.0796	1.95E-06	6.46E-09	7.50E-07
Zinc	13.3072	1.03E-05	3.41E-08	1.60E-06
Non-Conventional Pollutants				
Aluminum	601.9718	1.13E-01	3.76E-04	8.68E-02
Barium	0.0730	1.37E-05	4.56E-08	
Iron	1018.4055	1.92E-01	6.36E-04	
Tin	0.9690	1.82E-04	6.05E-07	
Titanium	5.8074	1.09E-03	3.63E-06	

Recreational Finfish Health Risks - AK
BAT Option 1

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.33E-04	3.60E-07	1.80E-05		
Fluorene	5.09E-06	1.38E-08	3.45E-07		
Phenanthrene	1.06E-03	2.87E-06			
Phenol	1.53E-09	4.16E-12	6.93E-12		
Priority Pollutants, Metals					
Cadmium	3.21E-07	8.70E-10	8.70E-07		
Mercury	4.10E-07	1.11E-09	3.71E-06		
Antimony	3.07E-08	8.33E-11	2.08E-07		
Arsenic	6.47E-08	1.76E-10	5.85E-07	5.02E-11	1.17E-10
Berylium	7.16E-08	1.94E-10			
Chromium	5.41E-06	1.47E-08	4.89E-06		
Copper	1.76E-07	4.77E-10			
Lead	1.43E-06	3.87E-09			
Nickel	1.13E-06	3.07E-09	1.53E-07		
Selenium	2.84E-08	7.71E-11	1.54E-08		
Silver	1.89E-09	5.11E-12	1.02E-09		
Thallium	7.50E-07	2.03E-09	2.54E-05		
Zinc	1.60E-06	4.34E-09	1.45E-08		
Non-Conventional Pollutants					
Aluminum	8.68E-02	2.35E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Recreational Finfish Tissue Pollutant Concentrations - AK
BAT Option 2

Pollutant Name	Average Conc. Of Pollutants in Model SBF Well Effluent (mg/l)	Ambient Bioavailable Conc. In Plume (mg/l)	Average Exposure Conc. (mg/l)	Fish Tissue Concentration (mg/kg)
Priority Pollutant Organics				
Naphthalene	0.4750	8.94E-05	2.96E-07	1.26E-04
Fluorene	0.2591	4.88E-05	1.62E-07	4.85E-06
Phenanthrene	0.6145	1.16E-04	3.84E-07	1.01E-03
Phenol	0.0017	3.15E-07	1.04E-09	1.46E-09
Priority Pollutants, Metals				
Cadmium	0.0696	1.44E-06	4.78E-09	3.06E-07
Mercury	0.0063	2.14E-08	7.10E-11	3.91E-07
Antimony	0.3604	8.82E-06	2.92E-08	2.92E-08
Arsenic	0.4489	4.23E-07	1.40E-09	6.16E-08
Berylium	0.0443	1.08E-06	3.59E-09	6.82E-08
Chromium	15.1752	9.71E-05	3.22E-07	5.15E-06
Copper	1.1824	1.40E-06	4.65E-09	1.67E-07
Lead	2.2194	8.36E-06	2.77E-08	1.36E-06
Nickel	0.8536	6.91E-06	2.29E-08	1.08E-06
Selenium	0.0696	1.70E-06	5.64E-09	2.71E-08
Silver	0.0443	1.08E-06	3.59E-09	1.80E-09
Thallium	0.0759	1.86E-06	6.16E-09	7.14E-07
Zinc	12.6776	9.79E-06	3.24E-08	1.52E-06
Non-Conventional Pollutants				
Aluminum	573.4885	8.40E-02	2.78E-04	6.43E-02
Barium	37179.1542	5.44E+00	1.80E-02	
Iron	970.2178	1.42E-01	4.71E-04	
Tin	0.9232	1.35E-04	4.48E-07	
Titanium	5.5326	8.10E-04	2.69E-06	

Recreational Finfish Health Risks - AK
BAT Option 2

Pollutant Name	Fish Tissue Concentration (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	1.26E-04	3.43E-07	1.71E-05		
Fluorene	4.85E-06	1.32E-08	3.29E-07		
Phenanthrene	1.01E-03	2.74E-06			
Phenol	1.46E-09	3.96E-12	6.61E-12		
Priority Pollutants, Metals					
Cadmium	3.06E-07	8.29E-10	8.29E-07		
Mercury	3.91E-07	1.06E-09	3.53E-06		
Antimony	2.92E-08	7.93E-11	1.98E-07		
Arsenic	6.16E-08	1.67E-10	5.57E-07	4.78E-11	1.11E-10
Berylium	6.82E-08	1.85E-10			
Chromium	5.15E-06	1.40E-08	4.66E-06		
Copper	1.67E-07	4.54E-10			
Lead	1.36E-06	3.68E-09			
Nickel	1.08E-06	2.92E-09	1.46E-07		
Selenium	2.71E-08	7.35E-11	1.47E-08		
Silver	1.80E-09	4.87E-12	9.74E-10		
Thallium	7.14E-07	1.94E-09	2.42E-05		
Zinc	1.52E-06	4.14E-09	1.38E-08		
Non-Conventional Pollutants					
Aluminum	6.43E-02	1.74E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

APPENDIX 5-4

GULF OF MEXICO
COMMERCIAL FISHERIES
HUMAN HEALTH RISK ANALYSIS

Commercial Shrimp Health Risks - GOM
Shallow Water Development Model Well
Baseline

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	9.82E-04	1.16E-08	5.82E-07		
Fluorene	1.93E-05	2.29E-10	5.72E-09		
Phenanthrene	1.11E-03	1.32E-08			
Phenol	1.62E-06	1.92E-11	3.20E-11		
Priority Pollutants, Metals					
Cadmium	2.99E-05	3.54E-10	3.54E-07		
Mercury	3.82E-05	4.53E-10	1.51E-06		
Antimony	2.86E-06	3.39E-11	8.47E-08		
Arsenic	6.02E-06	7.14E-11	2.38E-07	2.04E-11	4.76E-11
Berylium	6.67E-06	7.90E-11			
Chromium	5.03E-04	5.97E-09	1.99E-06		
Copper	1.64E-05	1.94E-10			
Lead	1.33E-04	1.57E-09			
Nickel	1.05E-04	1.25E-09	6.24E-08		
Selenium	2.65E-06	3.14E-11	6.28E-09		
Silver	1.75E-07	2.08E-12	4.16E-10		
Thallium	6.98E-05	8.27E-10	1.03E-05		
Zinc	1.49E-04	1.77E-09	5.89E-09		
Non-Conventional Pollutants					
Aluminum	1.05E+00	1.25E-05			
Barium					
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Development Model Well
Baseline

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/l)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	1.60E+05	2.41E-03	2.10E-04	9.82E-04
Fluorene	8.74E+04	1.32E-03	5.85E-05	1.93E-05
Phenanthrene	2.07E+05	3.12E-03	3.85E-05	1.11E-03
Phenol	5.64E+02	8.49E-06	1.05E-04	1.62E-06
Priority Pollutants, Metals				
Cadmium	2.35E+04	3.53E-04	4.24E-05	2.99E-05
Mercury	2.13E+03	3.21E-05	6.31E-07	3.82E-05
Antimony	1.22E+05	1.83E-03	2.60E-04	2.86E-06
Arsenic	1.51E+05	2.28E-03	1.24E-05	6.02E-06
Berylium	1.49E+04	2.25E-04	3.19E-05	6.67E-06
Chromium	5.12E+06	7.70E-02	2.86E-03	5.03E-04
Copper	3.99E+05	6.00E-03	4.13E-05	1.64E-05
Lead	7.49E+05	1.13E-02	2.46E-04	1.33E-04
Nickel	2.88E+05	4.33E-03	2.03E-04	1.05E-04
Selenium	2.35E+04	3.53E-04	5.01E-05	2.65E-06
Silver	1.49E+04	2.25E-04	3.19E-05	1.75E-07
Thallium	2.56E+04	3.85E-04	5.47E-05	6.98E-05
Zinc	4.28E+06	6.43E-02	2.88E-04	1.49E-04
Non-Conventional Pollutants				
Aluminum	1.93E+08	2.91E+00	4.13E-01	1.05E+00
Barium	1.25E+10	1.89E+02	4.33E-01	
Iron	3.27E+08	4.92E+00	6.99E-01	
Tin	3.11E+05	4.69E-03	6.65E-04	
Titanium	1.87E+06	2.81E-02	3.99E-03	

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Development Model Well
BAT Option 1

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	5.42E+04	8.16E-04	7.10E-05	3.33E-04
Fluorene	2.96E+04	4.45E-04	1.98E-05	6.53E-06
Phenanthrene	7.02E+04	1.06E-03	1.30E-05	3.77E-04
Phenol	1.91E+02	2.87E-06	3.56E-05	5.48E-07
Priority Pollutants, Metals				
Cadmium	7.94E+03	1.19E-04	1.44E-05	1.01E-05
Mercury	7.22E+02	1.09E-05	2.14E-07	1.29E-05
Antimony	4.11E+04	6.19E-04	8.79E-05	9.67E-07
Arsenic	5.12E+04	7.71E-04	4.21E-06	2.04E-06
Berylium	5.05E+03	7.60E-05	1.08E-05	2.26E-06
Chromium	1.73E+06	2.61E-02	9.68E-04	1.70E-04
Copper	1.35E+05	2.03E-03	1.40E-05	5.53E-06
Lead	2.53E+05	3.81E-03	8.33E-05	4.49E-05
Nickel	9.74E+04	1.47E-03	6.89E-05	3.56E-05
Selenium	7.94E+03	1.19E-04	1.70E-05	8.96E-07
Silver	5.05E+03	7.60E-05	1.08E-05	5.94E-08
Thallium	8.66E+03	1.30E-04	1.85E-05	2.36E-05
Zinc	1.45E+06	2.18E-02	9.75E-05	5.04E-05
Non-Conventional Pollutants				
Aluminum	6.55E+07	9.85E-01	1.40E-01	3.55E-01
Barium	4.24E+09	6.39E+01	1.46E-01	
Iron	1.11E+08	1.67E+00	2.37E-01	
Tin	1.05E+05	1.59E-03	2.25E-04	
Titanium	6.32E+05	9.50E-03	1.35E-03	

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Development Model Well
BAT Option 1

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	3.33E-04	5.72E-09	2.86E-07		
Fluorene	6.53E-06	1.12E-10	2.81E-09		
Phenanthrene	3.77E-04	6.48E-09			
Phenol	5.48E-07	9.42E-12	1.57E-11		
Priority Pollutants, Metals					
Cadmium	1.01E-05	1.74E-10	1.74E-07		
Mercury	1.29E-05	2.22E-10	7.41E-07		
Antimony	9.67E-07	1.66E-11	4.16E-08		
Arsenic	2.04E-06	3.51E-11	1.17E-07	1.00E-11	2.34E-11
Berylium	2.26E-06	3.88E-11			
Chromium	1.70E-04	2.93E-09	9.77E-07		
Copper	5.53E-06	9.52E-11			
Lead	4.49E-05	7.72E-10			
Nickel	3.56E-05	6.12E-10	3.06E-08		
Selenium	8.96E-07	1.54E-11	3.08E-09		
Silver	5.94E-08	1.02E-12	2.04E-10		
Thallium	2.36E-05	4.06E-10	5.08E-06		
Zinc	5.04E-05	8.67E-10	2.89E-09		
Non-Conventional Pollutants					
Aluminum	3.55E-01	6.11E-06			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Development Model Well
BAT Option 2

Pollutant Name	Annual Pollutant Loadings (mg) per SWD Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	4.99E+04	7.50E-04	6.52E-05	3.06E-04
Fluorene	2.72E+04	4.09E-04	1.82E-05	6.01E-06
Phenanthrene	6.45E+04	9.71E-04	1.20E-05	3.47E-04
Phenol	1.76E+02	2.64E-06	3.27E-05	5.04E-07
Priority Pollutants, Metals				
Cadmium	7.30E+03	1.10E-04	1.32E-05	9.29E-06
Mercury	6.64E+02	9.98E-06	1.96E-07	1.19E-05
Antimony	3.78E+04	5.69E-04	8.08E-05	8.89E-07
Arsenic	4.71E+04	7.09E-04	3.87E-06	1.87E-06
Berylium	4.65E+03	6.99E-05	9.92E-06	2.07E-06
Chromium	1.59E+06	2.40E-02	8.90E-04	1.57E-04
Copper	1.24E+05	1.87E-03	1.28E-05	5.09E-06
Lead	2.33E+05	3.50E-03	7.66E-05	4.13E-05
Nickel	8.96E+04	1.35E-03	6.33E-05	3.27E-05
Selenium	7.30E+03	1.10E-04	1.56E-05	8.23E-07
Silver	4.65E+03	6.99E-05	9.92E-06	5.46E-08
Thallium	7.96E+03	1.20E-04	1.70E-05	2.17E-05
Zinc	1.33E+06	2.00E-02	8.97E-05	4.64E-05
Non-Conventional Pollutants				
Aluminum	6.02E+07	9.06E-01	1.29E-01	3.27E-01
Barium	3.90E+09	5.87E+01	1.35E-01	
Iron	1.02E+08	1.53E+00	2.18E-01	
Tin	9.69E+04	1.46E-03	2.07E-04	
Titanium	5.81E+05	8.74E-03	1.24E-03	

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Development Model Well
BAT Option 2

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	3.06E-04	5.26E-09	2.63E-07		
Fluorene	6.01E-06	1.03E-10	2.58E-09		
Phenanthrene	3.47E-04	5.96E-09			
Phenol	5.04E-07	8.67E-12	1.44E-11		
Priority Pollutants, Metals					
Cadmium	9.29E-06	1.60E-10	1.60E-07		
Mercury	1.19E-05	2.04E-10	6.81E-07		
Antimony	8.89E-07	1.53E-11	3.82E-08		
Arsenic	1.87E-06	3.22E-11	1.07E-07	9.21E-12	2.15E-11
Berylium	2.07E-06	3.57E-11			
Chromium	1.57E-04	2.69E-09	8.98E-07		
Copper	5.09E-06	8.75E-11			
Lead	4.13E-05	7.10E-10			
Nickel	3.27E-05	5.63E-10	2.81E-08		
Selenium	8.23E-07	1.42E-11	2.83E-09		
Silver	5.46E-08	9.39E-13	1.88E-10		
Thallium	2.17E-05	3.73E-10	4.67E-06		
Zinc	4.64E-05	7.97E-10	2.66E-09		
Non-Conventional Pollutants					
Aluminum	3.27E-01	5.62E-06			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Exploratory Model Well
Baseline

Pollutant Name	Annual Pollutant Loadings (mg) per SWE Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/l)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	3.36E+05	5.05E-03	4.39E-04	2.06E-03
Fluorene	1.83E+05	2.76E-03	1.23E-04	4.04E-05
Phenanthrene	4.34E+05	6.54E-03	8.07E-05	2.33E-03
Phenol	1.18E+03	1.78E-05	2.20E-04	3.39E-06
Priority Pollutants, Metals				
Cadmium	4.92E+04	7.40E-04	8.89E-05	6.26E-05
Mercury	4.47E+03	6.73E-05	1.32E-06	8.00E-05
Antimony	2.55E+05	3.83E-03	5.44E-04	5.99E-06
Arsenic	3.17E+05	4.77E-03	2.61E-05	1.26E-05
Berylium	3.13E+04	4.71E-04	6.68E-05	1.40E-05
Chromium	1.07E+07	1.61E-01	5.99E-03	1.06E-03
Copper	8.36E+05	1.26E-02	8.65E-05	3.43E-05
Lead	1.57E+06	2.36E-02	5.16E-04	2.78E-04
Nickel	6.03E+05	9.08E-03	4.26E-04	2.20E-04
Selenium	4.92E+04	7.40E-04	1.05E-04	5.55E-06
Silver	3.13E+04	4.71E-04	6.68E-05	3.68E-07
Thallium	5.36E+04	8.07E-04	1.15E-04	1.46E-04
Zinc	8.96E+06	1.35E-01	6.04E-04	3.12E-04
Non-Conventional Pollutants				
Aluminum	4.05E+08	6.10E+00	8.66E-01	2.20E+00
Barium	2.63E+10	3.95E+02	9.07E-01	
Iron	6.86E+08	1.03E+01	1.47E+00	
Tin	6.53E+05	9.82E-03	1.39E-03	
Titanium	3.91E+06	5.88E-02	8.36E-03	

Commercial Shrimp Health Risks - GOM
Shallow Water Exploratory Model Well
Baseline

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	2.06E-03	1.37E-08	6.84E-07		
Fluorene	4.04E-05	2.69E-10	6.72E-09		
Phenanthrene	2.33E-03	1.55E-08			
Phenol	3.39E-06	2.25E-11	3.76E-11		
Priority Pollutants, Metals					
Cadmium	6.26E-05	4.16E-10	4.16E-07		
Mercury	8.00E-05	5.32E-10	1.77E-06		
Antimony	5.99E-06	3.98E-11	9.95E-08		
Arsenic	1.26E-05	8.39E-11	2.80E-07	2.40E-11	5.59E-11
Berylium	1.40E-05	9.29E-11			
Chromium	1.06E-03	7.01E-09	2.34E-06		
Copper	3.43E-05	2.28E-10			
Lead	2.78E-04	1.85E-09			
Nickel	2.20E-04	1.47E-09	7.33E-08		
Selenium	5.55E-06	3.69E-11	7.37E-09		
Silver	3.68E-07	2.44E-12	4.89E-10		
Thallium	1.46E-04	9.72E-10	1.21E-05		
Zinc	3.12E-04	2.08E-09	6.92E-09		
Non-Conventional Pollutants					
Aluminum	2.20E+00	1.46E-05			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Exploratory Model Well
BAT Option 1

Pollutant Name	Annual Pollutant Loadings (mg) per SWE Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	1.14E+05	1.71E-03	1.49E-04	6.97E-04
Fluorene	6.20E+04	9.32E-04	4.15E-05	1.37E-05
Phenanthrene	1.47E+05	2.21E-03	2.73E-05	7.90E-04
Phenol	4.00E+02	6.02E-06	7.45E-05	1.15E-06
Priority Pollutants, Metals				
Cadmium	1.66E+04	2.50E-04	3.01E-05	2.12E-05
Mercury	1.51E+03	2.28E-05	4.47E-07	2.71E-05
Antimony	8.62E+04	1.30E-03	1.84E-04	2.03E-06
Arsenic	1.07E+05	1.62E-03	8.82E-06	4.27E-06
Berylium	1.06E+04	1.59E-04	2.26E-05	4.73E-06
Chromium	3.63E+06	5.46E-02	2.03E-03	3.57E-04
Copper	2.83E+05	4.26E-03	2.93E-05	1.16E-05
Lead	5.31E+05	7.99E-03	1.74E-04	9.41E-05
Nickel	2.04E+05	3.07E-03	1.44E-04	7.46E-05
Selenium	1.66E+04	2.50E-04	3.55E-05	1.88E-06
Silver	1.06E+04	1.59E-04	2.26E-05	1.24E-07
Thallium	1.82E+04	2.73E-04	3.88E-05	4.95E-05
Zinc	3.03E+06	4.56E-02	2.04E-04	1.05E-02
Non-Conventional Pollutants				
Aluminum	1.37E+08	2.06E+00	2.93E-01	7.40E+01
Barium	8.89E+09	1.34E+02	3.07E-01	
Iron	2.32E+08	3.49E+00	4.96E-01	
Tin	2.21E+05	3.32E-03	4.72E-04	
Titanium	1.32E+06	1.99E-02	2.83E-03	

Commercial Shrimp Health Risks - GOM
Shallow Water Exploratory Model Well
BAT Option 1

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	6.97E-04	6.73E-09	3.36E-07		
Fluorene	1.37E-05	1.32E-10	3.30E-09		
Phenanthrene	7.90E-04	7.63E-09			
Phenol	1.15E-06	1.11E-11	1.85E-11		
Priority Pollutants, Metals					
Cadmium	2.12E-05	2.04E-10	2.04E-07		
Mercury	2.71E-05	2.61E-10	8.71E-07		
Antimony	2.03E-06	1.96E-11	4.89E-08		
Arsenic	4.27E-06	4.12E-11	1.37E-07	1.18E-11	2.75E-11
Berylium	4.73E-06	4.57E-11			
Chromium	3.57E-04	3.45E-09	1.15E-06		
Copper	1.16E-05	1.12E-10			
Lead	9.41E-05	9.08E-10			
Nickel	7.46E-05	7.20E-10	3.60E-08		
Selenium	1.88E-06	1.81E-11	3.63E-09		
Silver	1.24E-07	1.20E-12	2.40E-10		
Thallium	4.95E-05	4.78E-10	5.97E-06		
Zinc	1.05E-02	1.01E-07	3.38E-07		
Non-Conventional Pollutants					
Aluminum	7.40E+01	7.14E-04			
Barium			0.00E+00		
Iron					
Tin					
Titanium					

Commercial Shrimp Tissue Pollutant Concentrations - GOM
Shallow Water Exploratory Model Well
BAT Option 2

Pollutant Name	Annual Pollutant Loadings (mg) per SWE Model SBF Well	Pollutant Sediment Concentration (mg poll/kg sed)	Estimated Pore Water Conc. (mg/kg)	Shrimp Tissue Conc. (mg/kg)
Priority Pollutant Organics				
Naphthalene	1.04E+05	1.57E-03	1.37E-04	6.40E-04
Fluorene	5.70E+04	8.57E-04	3.81E-05	1.26E-05
Phenanthrene	1.35E+05	2.03E-03	2.51E-05	7.26E-04
Phenol	3.68E+02	5.53E-06	6.85E-05	1.06E-06
Priority Pollutants, Metals				
Cadmium	1.53E+04	2.30E-04	2.77E-05	1.95E-05
Mercury	1.39E+03	2.09E-05	4.11E-07	2.49E-05
Antimony	7.93E+04	1.19E-03	1.69E-04	1.86E-06
Arsenic	9.87E+04	1.49E-03	8.11E-06	3.93E-06
Berylium	9.74E+03	1.46E-04	2.08E-05	4.35E-06
Chromium	3.34E+06	5.02E-02	1.86E-03	3.28E-04
Copper	2.60E+05	3.91E-03	2.69E-05	1.07E-05
Lead	4.88E+05	7.34E-03	1.60E-04	8.65E-05
Nickel	1.88E+05	2.82E-03	1.33E-04	6.86E-05
Selenium	1.53E+04	2.30E-04	3.27E-05	1.73E-06
Silver	9.74E+03	1.46E-04	2.08E-05	1.14E-07
Thallium	1.67E+04	2.51E-04	3.57E-05	4.55E-05
Zinc	2.79E+06	4.20E-02	1.88E-04	9.71E-05
Non-Conventional Pollutants				
Aluminum	1.26E+08	1.90E+00	2.69E-01	6.85E-01
Barium	8.18E+09	1.23E+02	2.82E-01	
Iron	2.13E+08	3.21E+00	4.56E-01	
Tin	2.03E+05	3.05E-03	4.34E-04	
Titanium	1.22E+06	1.83E-02	2.60E-03	

Commercial Shrimp Health Risks - GOM
Shallow Water Exploratory Model Well
BAT Option 2

Pollutant Name	Shrimp Tissue Conc. (mg/kg)	99th Percentile Intake (mg/kg-day)	99th Percentile Hazard Quotient (mg/kg-day)	Lifetime Excess Cancer Risk (30 yr Exposure)	Lifetime Excess Cancer Risk (70 yr Exposure)
Priority Pollutant Organics					
Naphthalene	6.40E-04	6.19E-09	3.09E-07		
Fluorene	1.26E-05	1.21E-10	3.04E-09		
Phenanthrene	7.26E-04	7.01E-09			
Phenol	1.06E-06	1.02E-11	1.70E-11		
Priority Pollutants, Metals					
Cadmium	1.95E-05	1.88E-10	1.88E-07		
Mercury	2.49E-05	2.40E-10	8.01E-07		
Antimony	1.86E-06	1.80E-11	4.50E-08		
Arsenic	3.93E-06	3.79E-11	1.26E-07	1.08E-11	2.53E-11
Berylium	4.35E-06	4.20E-11			
Chromium	3.28E-04	3.17E-09	1.06E-06		
Copper	1.07E-05	1.03E-10			
Lead	8.65E-05	8.35E-10			
Nickel	6.86E-05	6.62E-10	3.31E-08		
Selenium	1.73E-06	1.67E-11	3.33E-09		
Silver	1.14E-07	1.10E-12	2.21E-10		
Thallium	4.55E-05	4.39E-10	5.49E-06		
Zinc	9.71E-05	9.38E-10	3.13E-09		
Non-Conventional Pollutants					
Aluminum	6.85E-01	6.61E-06			
Barium			0.00E+00		
Iron					
Tin					
Titanium					