Table A3

Reasonable Potential Analysis for Non-Priority Pollutants in Storm Water
The Boeing Company
(Santa Susana Field
Outfall 009
(CA0001309, CI-6027)

CONSTITUENT	Units	Number of Samples	Maximum Observed Effluent Concentration	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection	REASONABLE POTENTIAL
Total Dissolved Solids	mg/L	7	140	0.11	1.28	178.59	0		178.59	850	BU	Yes
Oil and Grease	mg/L	7	3.9	0.87	5.52	21.53	0		21.53	15	BU	YES
Chloride	mg/L	7	13	0.33	2.08	27.10	0		27.10	150	BU	NO
Sulfate	mg/L	7	26	0.43	2.54	66.06	0		66.06	250	BU	NO
Gross Alpha	pci/L	6	1.41	0.52	3.28	4.63	0		4.63	15	BU	NO
Gross Beta	pci/L	6	5.5	0.59	3.77	20.74	0		20.74	50	BU	NO
Strontium	pci/L	6	0.5	1.79	18.10	9.05	0		9.05	8	BU	YES
Radium 226 and 228	pci/L	6	1.9	1.80	18.21	34.28	0		34.28	5	BU	YES
Tritium	pci/L	7	210	-7.04	91.73	19263	0		19263	20000	BU	NO
Uranium	pci/L	6	0.107	0.69	4.55	0.486	0		0.49	20	BU	NO
Nitrate + Nitrite	mg/L	7	3.3	0.57	3.35	11.041	0		11.04	10	BU	YES

TABLE R1

Boeing SSFL
Outfalls 011 and 18
(CA0001309, CI-6027)

					CTR CRITERIA				Basin Plan	REASONABLE POTENTIAL ANALYSIS (RPA)							HUMAN HEALTH CALCULATIONS		
					Freshwater		Human Health										Organisns Only		
CTR#	DATE	Units	CV	MEC		C acute = CMC tot	C chronic = CCC tot	Not applicable C hh W&O	C hh O	Title 22 GWR	Lowest C	MEC >= Lowest C	Tier 1 - Need limit?	B>C	Tier 2 - Need limit?	Tier 3 - other info. ?	Tier 3 - need limit?	AMELhh = ECA = C hh O	MDEL/ AMEL multiplier	MDEL hh
1	Antimony	µg/L	0.60	1.3	1.3	NONE	NONE	14	4300	6	6.0	No	Go to Tier 2	No	NO	NO	YES	4300	2.01	
2	Arsenic	µg/L	0.6	4.7	4.7	340	150	NONE	NONE	10	10.0	No	Go to Tier 2	No	NO	NO	YES	NONE	2.00	
3	Beryllium	µg/L	1.0783	0.14	0.14	NONE	NONE	Narrative	Narrative	4	4.0	No	NO	No	NO	NO	YES	Narrative	2.60	
4	Cadmium*	µg/L	0.44	0.25	0.25	4.6	2.4	Narrative	Narrative	5	2.4	No	Go to Tier 2	No	YES	YES	YES	Narrative	1.75	
5a	Chromium III*	µg/L	1.2929	6.5	6.5	1741	209	Narrative	Narrative		209	No	Go to Tier 2	No	NO	NO	NO	Narrative	2.76	
5b	Chromium VI	µg/L	0.6		0	16.3	9.4	Narrative	Narrative	50	9.4	No	Go to Tier 2	No	NO	NO	YES	Narrative	2.01	
6	Copper*	µg/L	0.4	8.9	8.9	13.5	9.4	1300	NONE		9.4	No	Yes	No	YES	YES	YES	NONE	1.6	
7	Lead*	µg/L	1.03	8.8	8.8	82.2	3.2	Narrative	Narrative		3.2	YES	Yes	No	YES	YES	YES	Narrative	2.6	
8	Mercury	µg/L	1.0	0.26	0.26	Reserved	Reserved	0.05	0.051	2	0.05	YES	Yes	No	YES	YES	YES	0.051	2.5	0.13
9	Nickel*	µg/L	0.65	5	5	470.94	52.156469	610	4600	100	52.16	No	Go to Tier 2	No	NO	NO	YES	4600	2.08	9579
10	Selenium	µg/L	0.5363	0.68	0.68	Reserved	5	Narrative	Narrative	50	5.00	No	Go to Tier 2	No	NO	NO	YES	Narrative	1.90	
11	Silver*	µg/L	0.6	0.14	0.14	4	none	NONE	NONE		4.00	No	Go to Tier 2	No	NO	NO	YES	NONE	2.01	
12	Thallium	µg/L	0.6	0.9	0.9	NONE	NONE	1.7	6.3	2	2.00	No	Go to Tier 2	No	NO	NO	YES	6.3	2.01	13
13	Zinc*	µg/L	1.7834	270	270	122.7	121.7	none	NONE		D	No	Go to Tier 2	No	YES	YES	YES	NONE	3.01	
14	Cyanide	µg/L	0.6	3.5	3.5	22	5.2	700	220,000	200	5.2	No	No	No	NO	NO	YES	220000	2.0	441362
16	2,3,7,8-TCDD (Dioxin)	µg/L	0.6	2E-06	2.3E-06	NONE	NONE	1.3E-08	1.4E-08	3x10^-5	1.4E-08	YES	Yes	No	YES	YES	YES	0.000000014	2.01	2.81E-08
19	Benzene	µg/L	0.6	0.38	0.38	NONE	NONE	1.2	71	1	1	No	Go to Tier 2	No	NO	NO	NO		2.01	
30	1,1-Dichloroethylene	µg/L	0.6		0	NONE	NONE	0.057	3.2	6	3.2	No	Go to Tier 2	No	NO	NO	NO	3.2	2.01	6
32	1,3-dichloropropylene	µg/L	0.6		0	NONE	NONE	10	1,700	0.5	0.5	No	Go to Tier 2	No	NO	NO	NO			
43	Trichloroethylene	µg/L	0.6	1	1	NONE	NONE	2.7	81	5	5	No	Go to Tier 2	No	NO	NO	NO	81	2.01	163
53	Pentachlorophenol	µg/L	0.6	0.094	0.094	32.54	24.97	0.28	8.2			No	Go to Tier 2	No	NO	YES	YES	8.2	2.01	16
55	2,4,6-trihlorophenol	µg/L	0.6		0	NONE	NONE	2.1	6.5		6.5	No	Go to Tier 2	No	NO	NO	NO	6.5	2.01	13
56	Acenaphthene	µg/L	0.6		0	NONE	NONE	1200	2,700		2,700	No	Go to Tier 2	No	NO	NO	NO			
68	Bis(2-Ethylhexyl) Phthalate	µg/L	0.6	1.6	1.6	NONE	NONE	1.8	5.9	4	4	No	YES					5.9	2.01	12
70	Butylbenzyl Phthalate	µg/L	0.9835	1.4	1.4	NONE	NONE	3000	5,200		5,200	No	Go to Tier 2	No	NO	NO	NO		2.50	

TABLE R1

Boeing SSFL
Outfalls 011 and 18
(CA0001309, CI-6027)

CTR#	DATE	Units	AQUATIC LIFE CALCULATIONS Freshwater: ECA acute multiplier (p.7)	LTA acute	ECA chronic multiplier	LTA chronic	Lowest LTA	AQUATIC LIFE CALCULATIONS Freshwater: AMEL multiplier (n=4)	AMEL aq.life	MDEL multiplier (n=4)	MDEL aqlife	PROPOSED LIMITS: Lowest AMEL**	Lowest MDEL	Recommendation
1	Antimony	µg/L	0.32		0.53			1.55		3.1		---	6	BPJ used to implement Basin Plan Title 22.
2	Arsenic	µg/L	0.32	110.1	0.53	79.6	79.6	1.55	123.1	3.1	245.7	---	10	BPJ used to implement USEPA MCL Limit based on RP
3	Beryllium	µg/L	0.19		0.35			0.35		5.2		---	4	BPJ used to implement Basin Plan Title 22.
4	Cadmium*	µg/L	0.41	1.9	0.62	1.5	1.5	1.40	2	2.4	3.6	2.0	4	BPJ used to implement CTR criteria.
5a	Chromium III*	µg/L	0.16	283.6	0.30	63.0	63.0	2.22	140.0	6.1	387.0	---	---	Interim Monitoring - No CTR based Limit
5b	Chromium VI	µg/L	0.32	5.2	0.53	4.9	4.9	1.55	8.1	3.1	16.3	8.1	16	BPJ used to implement CTR criteria from previous permit.
6	Copper*	µg/L	0.45	6.1	0.65	6.1	6.1	1.3	7.1	2.2	13.5	7.1	14	Limit Based on CTR. BPJ used to implement CTR criteria .
7	Lead*	µg/L	0.20	16.3	0.36	1.1	1.1	2.0	2.6	5.0	5.2	2.6	5	RP Limit Based on CTR
8	Mercury	µg/L	0.21		0.38			1.9		4.8		0.05	0.128	RP Limit Based on CTR
9	Nickel*	µg/L	0.30	141.2	0.50	26.2	26	1.60	35.0	3.3	96.0	35	96	BPJ limit Based on CTR from previous Order.
10	Selenium	µg/L	0.35		0.56	2.8	2.8	1.49	4.2	2.8	8.2	4	8	BPJ used to implemt CTR criteria.
11	Silver*	µg/L	0.32	1.3	0.53		1.3	1.55	2.0	3.1	4.1	2.0	4	BPJ used to implement CTR.
12	Thallium	µg/L	0.32		0.53			1.55		3.1		---	2	BPJ used to implement Basin Plan Title 22.
13	Zinc*	µg/L	0.13	15.5	0.23	27.5	16	2.63	53.6	7.9	119.0	53.6	119	BPJ used to implement CTR from previous Order.
14	Cyanide	µg/L	0.32	7.1	0.53	2.7	2.7	1.55	4.3	3.1	8.5	4	8.5	RP Limit based on CTR.
16	2,3,7,8-TCDD (Dioxin)	µg/L	0.3		0.53			1.55		3.1		1.4.E-08	2.81E-08	RP Limit Based on CTR
19	Benzene	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
30	1,1-Dichloroethylene	µg/L	0.3		0.53			1.55				3.2	6.0	Interim Monitoring - No Limit
32	1,3-dichloropropylene	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
43	Trichloroethylene	µg/L	0.3		0.53			1.55		3.1		---	5.0	BPJ used to retain previous limit.
53	Pentachlorophenol	µg/L	0.3	10.4	0.53	13.2	10.4	1.55	16.2	3.1	32.5	8.2	16.5	BPJ used to implement limit from previous order.
55	2,4,6-trihlorophenol	µg/L	0.3		0.53			1.55		3.1		6.5	13	BPJ used to retain previous limit.
56	Acenaphthene	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
68	Bis(2-Ethylhexyl) Phthalate	µg/L	0.3		0.38			1.93				---	4	BPJ used to implement Basin Plan Title 22.
70	Butylbenzyl Phthalate	µg/L	0.2		0.53			1.55				---	---	Interim Monitoring - No Limit

TABLE R1

Boeing SSFL
Outfalls 011 and 18
(CA0001309, CI-6027)

						CTR CRITERIA				Basin Plan	REASONABLE POTENTIAL ANALYSIS (RPA)							HUMAN HEALTH CALCULATIONS		
						Freshwater		Human Health										Organisns Only		
CTR#	DATE	Units	CV	MEC		C acute = CMC tot	C chronic = CCC tot	Not applicable C hh W&O	C hh O	Title 22 GWR	Lowest C	MEC >= Lowest C	Tier 1 - Need limit?	B>C	Tier 2 - Need limit?	Tier 3 - other info. ?	Tier 3 - need limit?	AMELhh = ECA = C hh O	MDEL/ AMEL multiplier	MDEL hh
79	Diethyl Phthalate	µg/L	0.6	0.12	0.12	NONE	NONE	23000	120,000		120,000	No	Go to Tier 2	No	NO	NO	NO	120000	2.01	
82	2,4-Dinitrotoluene	µg/L	0.6		0	NONE	NONE	0.11	9.1		9.1	No	Go to Tier 2	No	NO	Yes	Yes	9.1	2.01	18
93	Isophorone	µg/L	0.6	0.16	0.16	NONE	NONE	8.4	600		600	No	Go to Tier 2	No	NO	NO	NO		2.01	
94	Napthalene	µg/L	0.6	0.21	0.21	NONE	NONE	NONE	NONE		NONE	No Criteria Avaliable	Go to Tier 2	No	NO	NO	NO		2.01	
96	N-Nitrosodimethylamine	µg/L	0.6		0	NONE	NONE	0.00069	8.1		8.1	No	Go to Tier 2	No	NO	NO	NO	8.1	2.01	16
103	alpha-BHC	µg/L	0.6		0	NONE	NONE	0.0039	0.013		0.013	No	Go to Tier 2	No	NO	Yes	Yes	0.013	2.01	0.0261
104	beta-BHC	µg/L	0.6		0	NONE	NONE	0.014	0.046		0.046	No	Go to Tier 2	No	NO	NO	NO			
105	gamma-BHC (aka Lindane)	µg/L	0.6		0	0.95	NONE	0.019	0.063	0.2	0.063	No	Go to Tier 2	No	NO	NO	NO			
106	delta-BHC	µg/L	0.6		0	NONE	NONE	NONE	NONE		NONE	No Criteria Available	Go to Tier 2	No	NO	NO	NO			
107	Chlordane	µg/L	0.6		0	2.4	0.0043	0.00057	0.00059		0.00059	No	Go to Tier 2	No	NO	NO	NO			

FOOTNOTE:

** Limits are for discharges of stormwater and treated groundwater discharged together.

These metals are hardness dependent. CTR criteria was calculated using an average receiving water hardness of 100 mg/L.

TABLE R1

Boeing SSFL
Outfalls 011 and 18
(CA0001309, CI-6027)

CTR#	DATE	Units	AQUATIC LIFE CALCULATIONS Freshwater ECA acute multiplier (p.7)	LTA acute	ECA chronic multiplier	LTA chronic	Lowest LTA	AQUATIC LIFE CALCULATIONS Freshwater AMEL multiplier (n=4)	AMEL aq.life	MDEL multiplier (n=4)	MDEL aqlife	PROPOSED LIMITS Lowest AMEL**	Lowest MDEL	Recommendation
79	Diethyl Phthalate	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
82	2,4-Dinitrotoluene	µg/L	0.3		0.53			1.55		3.1		9.1	18.3	BPJ used to retain previous limit.
93	Isophorone	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
94	Napthalene	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
96	N-Nitrosodimethylamine	µg/L	0.3		0.53			1.55		3.1		8.1	16.3	BPJ used to retain previous limit.
103	alpha-BHC	µg/L	0.3		0.53			1.55		3.1		0.01	0.03	BPJ used to retain previous limit.
104	beta-BHC	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
105	gamma-BHC (aka Lindane)	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
106	delta-BHC	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit
107	Chlordane	µg/L	0.3		0.53			1.55				---	---	Interim Monitoring - No Limit

FOOTNOTE:

** Limits are for discharges of stormwater an

These metals are hardness dependent. CTR criteria was calculated using an average receiving water hardness of 100 mg/L.

Table A3

Reasonable Potential Analysis for Non-Priority Pollutants in Storm Water
The Boeing Company
(Santa Susana Field Laboratory)
Outfalls 011 and 018
(CA0001309, CI-6027)

CONSTITUENT	Units	Number of Samples	Maximum Observed Effluent Concentration	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection	REASONABLE POTENTIAL
Iron	mg/L	4	4.00	0.94	9.26	37.03	0		37.03	0.3	BU	YES
Manganese	mg/L	13	120	0.77	3.41	408.96	0		408.96	50	BU	YES
Barium	mg/L	13	0.05	0.40	2.00	0.09	0		0.09	1	BU	NO
Settleable solids	mg/L	22	0.2	0.56	2.12	0.42	0		0.42	0.3	BU	YES
Total Dissolved Solids	mg/L	22	420	0.34	1.62	679.03	0		679.03	950	BU	NO
Perchlorate	µg/L	22	5.8	1.65	5.25	30.46	0		30.46	6	BU	YES
Total Suspended solids	mg/L	22	230.00	1.35	4.37	1004.77	0		1004.77	45	BU	YES
$BOD_5 20°C$	mg/L	46	9.7	0.73	1.95	18.89	0		18.89	30	BU	NO
Oil and Grease	mg/L	22	17	1.90	5.97	101.51	0		101.51	15	BU	YES
Chloride	mg/L	45	84	0.93	2.25	188.89	0		188.89	150.00	BU	YES
Fluoride	mg/L	3	0.31	0.27	2.27	0.70	0		0.70	1.60	BU	NO
Sulfate	mg/L	22	93	0.48	1.92	178.62	0		178.62	300	BU	NO
Gross Alpha	pci/L	5	2.15	1.40	14.80	31.83	0		31.83	15	BU	YES
Gross Beta	pci/L	5	5.59	0.22	1.76	9.86	0		9.86	50	BU	NO
Strontium	pci/L	4	0.235	-40.25	2047.93	481.26	0		481.26	8	BU	YES
Radium 226 and 228	pci/L	2	2.2	1.10	24.75	53.68	0		53.68	5	BU	YES
Tritium	pci/L	4	-28.6	-0.38	2.79	-80	0		-80	20000	BU	NO
Nitrate + Nitrite as Nitrogen	mg/L	22	1.7	0.92	3.09	5	0		5	8	BU	NO
Surfactants	mg/L	45	4.4	2.54	4.29	19	0		19	0.5	BU	YES
Residual Chloride	mg/L	12	0.15	0.56	2.65	0.40	0		0.40	0	BU	YES
Ammonia as Nitrogen	mg/L	45	13	3.04	4.80	62.46	0		62.46	10	BU	YES

TABLE R1

Boeing SSFL
Outfalls 012 - 014
(CA0001309, CI-6027)

					CTR CRITERIA					REASONABLE POTENTIAL ANALYSIS (RPA)							HUMAN HEALTH CALCULATIONS		
					Freshwater		Human Health		Basin Plan								Organisns Only		
CTR#	DATE	Units	CV	MEC	C acute = CMC tot	C chronic = CCC tot	Not applicable C hh W&O	C hh O	Title 22 GWR	Lowest C	MEC >= Lowest C	Tier 1 - Need limit?	B>C	Tier 2 - Need limit?	Tier 3 - other info. ?	Tier 3 - need limit?	AMEL hh = ECA = C hh O	MDEL/ AMEL multiplier	MDEL hh
1	Antimony	µg/L	0.6	2.5	NONE	NONE	14	4300	6	6.0	No	Go to Tier 2	No	NO	NO	NO	4300	2.01	8627
4	Cadmium*	µg/L	0.97	5.2	4.6	2.4	Narrative	Narrative	5	2.4	YES	Yes	No	Yes	Yes	Yes	Narrative	2.01	
6	Copper*	µg/L	0.4	5.2	13.5	9.4	1300	NONE		9.4	No	Go to Tier 2	No	NO	Yes	Yes	NONE	2.0	
7	Lead*	µg/L	0.5	2.9	82.2	3.2	Narrative	Narrative		3.2	No	Go to Tier 2	No	NO	NO	Yes	Narrative	2.0	
10	Selenium	µg/L	1.8	1.4	Reserved	5	Narrative	Narrative	50	5.00	No	Go to Tier 2	No	NO	Yes	Yes	Narrative	2.01	
13	Zinc*	µg/L	0.8	160	122.7	121.7	none	NONE		121.70	YES	Go to Tier 2	No	Yes	Yes	Yes	NONE	2.01	
16	2,3,7,8-TCDD (Dioxin)	µg/L	0.6	1.21E-06	NONE	NONE	0.000000013	1.4E-08	3x10^-5	1.4E-08	YES	Yes	No	No	Yes	Yes	0.000000014	2.01	2.81E-08
43	Trichloroethylene	µg/L	0.6	1.40	NONE	NONE	2.7	81	5	5	No	Go to Tier 2	No	NO	NO	NO	81	2.01	1.63E+02

FOOTNOTE:
* These metals are hardness dependent. CTR criteria was calculated using an average receiving water hardness of 100 mg/L.

TABLE R1

Boeing SSFL
Outfalls 012 - 014
(CA0001309, CI-6027)

CTR#	DATE	Units	AQUATIC LIFE CALCULATIONS Freshwater: ECA acute multiplier (p.7)	LTA acute	ECA chronic multiplier	LTA chronic	Lowest LTA	AQUATIC LIFE CALCULATIONS Freshwater: AMEL multiplier (n=4)	AMEL aq.life	MDEL multiplier (n=4)	MDEL aqlife	PROPOSED LIMITS: Lowest AMEL	Lowest MDEL	Recommendation
1	Antimony	µg/L	0.32		0.53			1.6		3.1		--	--	Interim Monitoring - No CTR-based Limit
4	Cadmium*	µg/L	0.32	1.5	0.53	1.3	1.3	1.6	2	3.1	4	--	3.1	RP Limit Based on CTR/ LA River TMDL
6	Copper*	µg/L	0.32	4.3	0.53	4.9	4.3	1.6	6.7	3.1	13.5	--	13.5	Limit Based on CTR
7	Lead*	µg/L	0.32	26.4	0.53	1.7	1.7	1.6	2.6	3.1	5.2	--	5.2	BPJ used to implement Limit
10	Selenium	µg/L	0.32		0.53	2.6	2.6	1.6	4.1	3.1	8	--	5	Limit based on LA River TMDL
13	Zinc*	µg/L	0.32	39.4	0.53	64.2	39.4	1.6	61	3.1	159	--	159	RP Limit Based on CTR/ LA River TMDL
16	2,3,7,8-TCDD (Dioxin)	µg/L	0.32		0.53			1.6		3.1		--	2.8E-08	New Limit Based on CTR
43	Trichloroethylene	µg/L	0.32		0.53			1.6		3.1		--	--	Interim Monitoring - No Limit
FOOTNOTE:														
*	These metals are hardness dependent. CTR criteria was calculated using an average receiving water hardness of 100 mg/L.													

Table A3

Reasonable Potential Analysis for Non-Priority Pollutants in Storm Water
The Boeing Company
(Santa Susana Field Laboratory)
Outfalls 012 through 014
(CA0001309, CI-6027)

CONSTITUENT	Units	Number of Samples	Maximum Observed Effluent Concentration	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection	REASONABLE POTENTIAL
Total Dissolved Solids	mg/L	13	21	0.83	3.66	76.80	0		76.80	950	BU	NO
Settleable solids	ml/L	13	0.1	0.3	1.58	0.16	0		0.16	0.3	BU	NO
Total Suspended solids	mg/L	13	21.00	0.83	3.66	76.80	0		76.80	45	BU	YES
Total Petroleum Hydrocarbons	mg/L	28	0.095	0.59	2.04	0.19	0		0.19	0.1	BU	YES
Oil and Grease	mg/L	5	3.3	0.37	2.50	8.25	0		8.25	15	BU	NO
Chloride	mg/L	13	810	1.97	9.63	7804.33	0		7804.33	150	BU	YES
Sulfate	mg/L	13	240	2.08	10.20	2447.81	0		2447.81	300	BU	YES
Fluoride	mg/L	13	2	0.86	3.79	7.58	0		7.58	1.6	BU	YES
Nitrate + Nitrite as Nitrogen	mg/L	13	9	1.47	6.85	63.73	0		63.73	8	BU	YES
Nitrate as Nitrogen	mg/L	13	9	1.53	7.18	66.74	0		66.74	8	BU	YES

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 6027
for
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
(CA0001309)

I. Reporting Requirements

A. The Boeing Company (Discharger) shall implement this monitoring program on the effective date of this Order. All monitoring reports shall be submitted quarterly and must be received by the Regional Board by the dates in the following schedule. All monitoring reports should be addressed to the Regional Board, Attention: Information Technology Unit. The first monitoring report under this Program is due by August 15, 2009.

Reporting Period	Report Due
January – March	May 15
April – June	August 15
July – September	November 15
October – December	February 15

B. If there is no discharge during any reporting period, the report shall so state. The Discharger shall submit an annual summary report (for both dry and wet weather discharges), containing a discussion of the previous year's effluent and receiving water monitoring data, as well as graphical and tabular summaries of the data. The data shall be submitted to the Regional Board on hard copy and CD or electronically. Submitted data must be IBM compatible, preferably using EXCEL software. This annual report is to be received by the Regional Board by March 1 of each year following the calendar year of data collection.

C. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with waste discharge requirements, as well as all excursions of effluent limitations.

Each quarterly report shall contain a separate section titled "Reasonable Potential Analysis" which discusses whether or not reasonable potential was triggered for pollutants which do not have a final effluent limitation in the NPDES permit. This section shall contain the following statement, "The analytical results for this sampling period did/did not trigger reasonable potential." If reasonable potential was triggered, then the following information should be provided:

a. A list of the pollutant(s) that triggered reasonable potential;
b. The Basin Plan or CTR criteria that was exceeded for each given pollutant;
c. The concentration of the pollutant(s);
d. The test method used to analyze the sample; and
e. The data and time of sample collection.

D. The Discharger shall inform the Regional Board well in advance of any proposed construction activity that could potentially affect compliance with applicable requirements.

F. Any mitigation/remedial activity including any pre-discharge treatment conducted at the site must be reported in the quarterly monitoring report.

G. Database Management System – The Regional Board is developing a compliance monitoring database management system that may require the Discharger to submit the monitoring and annual reports electronically when it becomes fully operational.

II. Effluent Monitoring Requirements

A. Sampling station(s) shall be established for the point of discharge and shall be located where representative samples of that effluent can be obtained. Provisions shall be made to enable visual inspection of the discharge. All visual observations shall be included in the monitoring report.

B. This Regional Board shall be notified in writing of any change in the sampling stations once established, or in the methods for determining the quantities of pollutants in the individual waste streams.

C. Pollutants shall be analyzed using the methods described in 40 CFR 136.3, 136.4, and 136.5 (revised March 12, 2007); or where no methods are specified for a given pollutant, methods approved by Regional Board or State Board. Laboratories analyzing monitoring samples shall be certified by the California Department of Public Health and must include quality assurance/quality control (QA/QC) data with their report. For the purpose of monitoring pH, dissolved oxygen, residual chlorine, and temperature, tests may be conducted at the field sampling location provided that all requirements of the approved analytical methods for NPDES use in 40 CFR 136 are met.

The monitoring report shall specify the USEPA analytical method used, the Method Detection Limit (MDL) and the Minimum Level (ML) for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported by one of the following methods, as appropriate:

1. An actual numerical value for sample results greater than, or equal to, the ML; or,

2. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML; or,

3. "Not-Detected (ND)" for sample results less than the laboratory's MDL with MDL indicated for the analytical method used.

Current MLs (Attachment T-A) are those published by the State Water Resources Control Board (State Board) in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP), February 21, 2005.

D. Where possible, the MLs employed for effluent analyses shall be lower than the permit limits established for a given parameter. If the ML value is not below the effluent limitation, then the lowest ML value and its associated analytical method shall be selected for compliance purposes. At least once a year (in the annual report), the Discharger shall submit a list of the analytical methods employed for each test and associated laboratory quality assurance/quality control (QA/QC) procedures.

The Regional Board, in consultation with the State Board Quality Assurance Program, shall establish a ML that is not contained in Attachment T-A to be included in the Discharger's permit in any of the following situations:

1. When the pollutant under consideration is not included in Attachment T-A;

2. When the Discharger and Regional Board agree to include in the permit a test method that is more sensitive than those specified in 40 CFR 136 (revised May 14, 1999);

3. When the Discharger agrees to use an ML that is lower than that listed in Attachment T-A;

4. When a Discharger demonstrates that the calibration standard matrix is sufficiently different from that used to establish the ML in Attachment T-A and proposes an appropriate ML for their matrix; or,

5. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML. Examples of such methods are the USEPA-approved Method 1613 for dioxins and furans, Method 1624 for volatile organic substances, and Method 1625 for semi-volatile organic substances. In such cases, the Discharger, the Regional Board, and the State Board shall agree on a lowest quantifiable limit, and that limit will

substitute for the ML for reporting and compliance determination purposes.

E. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be submitted with the Annual Report.

F. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR section 136.3. All QA/QC samples must be run as specified by the EPA methodology and the results must be reported in the Regional Board format if available, and submitted with the laboratory reports.

G. All analyses shall be accompanied by the chain of custody, including but not limited to data and time of sampling, sample identification, and name of person who performed sampling, date of analysis, name of person who performed analysis, QA/QC data, method detection limits, analytical methods, copy of laboratory certification, and a perjury statement executed by the person responsible for the laboratory.

H. Quarterly effluent analyses are typically performed during the months of February, May, August and November. Annual effluent analyses shall be performed during the month of February. Due to the intermittent nature and unpredictable frequency of discharges from SSFL, periodic sampling should be conducted during the first opportunity presented during the prescribed monitoring period.

J. In coordination with interested stakeholders in the Calleguas Creek Watershed and within the Los Angeles River Watershed, the Discharger shall conduct instream bioassessment monitoring once a year, during the spring/summer period (unless an alternate sampling period is approved by the Executive Officer). Over time, bioassessment monitoring will provide a measure of the physical condition of the waterbody and the integrity of its biological communities.

1. The bioassessment program shall include an analysis of the community structure of the in stream macroinvertebrate assemblages and physical habitat assessment at the monitoring stations RSW-001U and RSW-002D. This program shall be implemented by appropriately trained staff. Alternatively, a professional subcontractor qualified to conduct bioassessments may be selected to perform the bioassessment work for the Discharger. Analyses of the results of the bioassessment monitoring program, along with photographs of the monitoring site locations taken during sample collection, shall be submitted in the corresponding annual report. If another stakeholder, or interested party in the watershed subcontracts a qualified professional to conduct bioassessment monitoring during the same season and at the same location as specified in the MRP,

then the Discharger may, in lieu of duplicative sampling, submit the data, a report interpreting the data, photographs of the site, and related QA/QC documentation in the corresponding annual report.

2. The Discharger must provide a copy of their Standard Operation Procedures (SOPs) for the Bioassessment Monitoring Program to the Regional Board upon request. The document must contain step-by-step field, laboratory and data entry procedures, as well as, related QA/QC procedures. The SOP must also include specific information about each bioassessment program including: assessment program description, its organization and the responsibilities of all its personnel; assessment project description and objectives; qualifications of all personnel; and the type of training each member has received.

3. Field sampling must conform to the SOP established for the California Stream Bioassessment Procedure (CSBP) or more recently established sampling protocols, such as used by the Surface Water Ambient Monitoring Program (SWAMP). Field crews shall be trained on aspects of the protocol and appropriate safety issues. All field data and sample Chain of Custody (COC) forms must be examined for completion and gross errors. Field inspections shall be planned with random visits and shall be performed by the Discharger or an independent auditor. These visits shall report on all aspects of the field procedure with corrective action occurring immediately.

4. A taxonomic identification laboratory shall process the biological samples that usually consist of subsampling organisms, enumerating and identifying taxonomic groups and entering the information into an electronic format. The Regional Board may require QA/QC documents from the taxonomic laboratories and examine their records regularly. Intra-laboratory QA/QC for subsampling, taxonomic validation and corrective actions shall be conducted and documented. Biological laboratories shall also maintain reference collections, vouchered specimens (the Discharger may request the return of their sample voucher collections) and remnant collections. The laboratory should participate in an (external) laboratory taxonomic validation program at a recommended level of 10% or 20%. External QA/QC may be arranged through the California Department of Fish and Game's Aquatic Bioassessment Laboratory located in Rancho Cordova, California.

5. The Executive Officer of the Regional Board may modify the Monitoring and Reporting Program to accommodate the watershed-wide monitoring.

I. For parameters that both monthly average and daily maximum limits are specified and the monitoring frequency is less than four times a month, the following shall apply. If an analytical result is greater than the monthly average limit, the sampling frequency shall be increased (within one week of receiving the test results) to a minimum of once weekly at equal intervals, until at least four

consecutive weekly samples have been obtained, and compliance with the monthly average limit has been demonstrated.

III. Effluent Monitoring Program

A. The rainfall in inches is recorded at the time the sample is collected. Daily rainfall measurements in inches per day are recorded and reported.

B. The following shall constitute the effluent monitoring program for the final effluent at Discharge Nos. 001, 002, 011, 018, and 019.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Total waste flow	gal/day	----	once per discharge event
Temperature	°F	grab	once per discharge event
pH	pH Units	grab	once per discharge event
Rainfall	Inches	continuous	continuous
Hardness as $CaCO_3$	mg/L	composite	annually
Conductivity at 25°C	µmhos/cm	grab	once per discharge event
Total suspended solids	mg/L	composite	once per discharge event
Settleable solids	ml/L	grab	once per discharge event
BOD_5(20°C)	mg/L	composite	once per discharge event
Oil and grease	mg/L	grab	once per discharge event
Turbidity	NTU	composite	once per discharge event
Total residual chlorine	mg/L	grab	annually
Total organic carbon	mg/L	composite	annually
Total dissolved solids	mg/L	composite	once per discharge event
Chloride	mg/L	composite	once per discharge event
Sulfate	mg/L	composite	once per discharge event

[1] During wet weather flow, a discharge event is greater than 0.1 inch of rainfall in a 24-hour period. No more than one sample per week need be obtained during extended periods of rainfall and a storm must be preceded by at least 72 hours of dry weather. Sampling shall be during the first hour of discharge or at the first safe opportunity. The reason for delay shall be included in the report. If the rain event is not sufficient to produce flow from the area, the observation must be documented with date, time condition and rainfall amount. During dry weather flow, whenever Outfalls 001, 002, 011, 018, or 019 is discharging, minimum sampling frequency during operations generating discharges shall be once per month.

© The thirty day average at pH = 7.9 and 20°C, when hourly samples are collected and composited or only one grab sample is collected. The one hour average WLA at 7.9 pH and 20°C, applies if hourly samples are taken throughout the storm and each is analyzed. No single sample may exceed the 10.1 mg/L limit. Analysis for the temperature and pH of the receiving water at the same time as the discharge would provide data for a site-specific determination of the ammonia limit using Attachment H to the WDR. Shall there be no receiving water present, the pH and temperature of the effluent at the monitoring location shall be determined and reported.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Detergents (as MBAS)	mg/L	composite	once per discharge event
Nitrate + Nitrate-N	mg/L	composite	once per discharge event
Ammonia-N	mg/L	composite	once per discharge event©
Nitrate-N	mg/L	composite	once per discharge event
Nitrite-N	mg/L	composite	once per discharge event
Cyanide[2]	µg/L	grab	once per discharge event
Copper[2]	µg/L	composite	once per discharge event
Lead[2]	µg/L	composite	once per discharge event
Mercury[2]	µg/L	composite	once per discharge event
1,1-Dichloroethylene	µg/L	grab	once per discharge event
Perchlorate	µg/L	composite	once per discharge event
2,4,6-Trichlorophenol	µg/L	composite	once per discharge event
2,4-Dinitrotoluene	µg/L	composite	once per discharge event
Alpha-BHC	µg/L	composite	once per discharge event
Bis(2-ethylhexyl)phthalate	µg/L	composite	once per discharge event
N-Nitrosodimethylamine	µg/L	composite	once per discharge event
Pentachlorophenol	µg/L	composite	once per discharge event
Trichloroethylene	µg/L	grab	once per discharge event
TCDD♦	µg/L	composite	once per discharge event
Volatile organic compounds	µg/L	grab	once per discharge event♦♦
Boron	mg/L	composite	annually[6]
Fluoride	mg/L	composite	annually[6]
Barium	mg/L	composite	annually[6]
Iron	mg/L	composite	annually[6]
Manganese[2]	µg/L	composite	annually[6]
Antimony[2]	µg/L	composite	annually[6]
Arsenic[2]	µg/L	composite	annually[6]
Beryllium[2]	µg/L	composite	annually[6]
Cadmium[2]	µg/L	composite	once per discharge event
Chromium (VI)[2,3]	µg/L	grab	annually[6]
Nickel[2]	µg/L	composite	annually[6]

♦ Analysis must be completed for TCDD and all congeners. After four consecutive samples are reported as nondetect the sampling frequency may be decreased to quarterly. If detected subsequently, the frequency reverts back to once per discharge event.

♦♦ Analyses must include benzene, carbon tetrachloride, chloroform, 1,1-dichloroethane, 1,2-dichloroethane, ethylbenzene, tetrachloroethylene, toluene, xylenes, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichlorofluoromethane, and vinyl chloride. Analyses shall be performed once per discharge event for two years, if all results are nondetect the frequency of monitoring is decreased to quarterly.

[2] Total recoverable results are required.

[3] The Discharger has the option to meet the hexavalent chromium limitations with a total chromium analysis. However, if the total chromium level exceeds the hexavalent chromium limitation, it will be considered a violation unless an analysis has been made for hexavalent chromium in replicate sample and the result is reported within the hexavalent chromium limits.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Selenium[2]	µg/L	composite	once per discharge event
Silver[2]	µg/L	composite	annually[6]
Thallium[2]	µg/L	composite	annually[6]
Zinc[2]	µg/L	composite	once per discharge event
Cobalt	µg/L	composite	annually
Vanadium	µg/L	composite	annually
Radioactivity-			
Gross Alpha	pCi/L	composite	once per discharge event
Gross Beta[4]	pCi/L	composite	once per discharge event
Combined Radium 226 & Radium 228[5]	pCi/L	composite	once per discharge event
Tritium[4]	pCi/L	composite	once per discharge event
Strontium-90[4]	pCi/L	composite	once per discharge event
H-3 (Radioactive Hydrogen) (Tritium)	pCi/L	composite	once per discharge event
K-40 (Potassium-40)	pCi/L	composite	once per discharge event
CS-137	pCi/L	composite	once per discharge event
Uranium	pCi/L	composite	once per discharge event
PCBs	µg/L	composite	annually
TPH[10]	µg/L	grab	annually
Monomethylhydrazine	µg/L	composite	annually
cis-1,2-Dichloroethene	µg/L	grab	annually
1,4-Dioxane	µg/L	composite	annually
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	composite	quarterly
1,2-Dichloro-1,1,2-triflouroethane	µg/L	composite	annually
Cyclohexane	µg/L	grab	annually

[4] Analyze these radiochemicals by the following USEPA testing methods: method 900.0 for gross alpha and gross beta, method 903.0 or 903.1 for radium-226, method 904.0 for radium-228, method 906.0 for tritium, method 908.0 for uranium, method 901.0 or 901.1 for Cesium, and method 905.0 for strontium-90.

[5] Gross alpha and gross beta analysis must be performed. Gross alpha analysis must be <15 pCi/L. If gross alpha is >15 pCi/L, uranium analysis must be performed and must be less than 30 µg/L (20 pCi/L). Radium-228 analysis must be performed, and combined Radium-226 and Ra-228 activity must be < 5pCi/L. Radium 226 analysis can be performed, or if gross alpha is <5 pCi/L, one can assume Ra-226 activity = gross alpha activity for purposes of meeting the 5 pCi/L limit.

Gross Beta, H-3, K-40, and Sr-90 analyses must be performed. The gross beta limit is 15 pCi/L, after subtraction of K-40 activity. The K-40 is assumed to be all natural. H-3 limit is 20,000 pCi/L, and the Sr-90 limit is 8 pCi/L. If gross beta >15 pCi/L (after subtracting K-40 activity) gamma isotopic analysis must be performed for Cs-137 (the most likely emitter associated with the site). The sum of the fractions technique must be used to demonstrate that the gamma emitters don't exceed 4 mrem/year (200 pCi/L for Cs 137). The sum of the fractions must include H-3 and Sr-90. If the limit is exceeded, which is an annual average, the frequency of the sampling is increased to once per discharge event until the annual average is below the specified limit. If the analyses of these constituents demonstrates exceedances, of the annual average effluent limitations (determined at each sampling point) the monitoring frequency is increased to once per discharge until four consecutive analyses demonstrates compliance with the effluent limitations.

[6] If detected concentration exceeds the criteria, the frequency of analysis must be increased to once per discharge. After four consecutive samplings demonstrating compliance the frequency reverts back to annually.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Remaining USEPA priority pollutants excluding asbestos[11]	µg/L	composite/ grab for VOCs	annually[6]
Acute toxicity	% survival	composite	annually
Chronic toxicity	TU_c	composite	First and second rain events of each year

C. The following shall constitute the storm water monitoring program for Outfalls 003, through 010.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Rainfall	inches	continuous	continuous
pH	pH Units	grab	once per discharge event
Oil and grease	mg/L	grab	once per discharge event
Temperature	°F	grab	once per discharge event
Total dissolved solids	mg/L	composite	once per discharge event
Chloride	mg/L	composite	once per discharge event
Sulfate	mg/L	composite	once per discharge event
Nitrate + Nitrate-N	mg/L	composite	once per discharge event
Ammonia-N (Outfall 008 only)	mg/L	composite	once per discharge event©
Nitrate-N (Outfall 008 only)	mg/L	composite	once per discharge event
Nitrite-N (Outfall 008 only)	mg/L	composite	once per discharge event
Total suspended solids	mg/L	composite	annually
Boron[2]	mg/L	composite	annually[6]
Fluoride	mg/L	composite	annually
Iron	mg/L	composite	annually
Antimony[2]	µg/L	composite	once per discharge event
Cadmium[2]	µg/L	composite	once per discharge event
Copper[2]	µg/L	composite	once per discharge event
Lead[2]	µg/L	composite	once per discharge event
Mercury[2]	µg/L	composite	once per discharge event
Thallium	µg/L	composite	once per discharge event
Selenium (Outfall 008 only)	µg/L	composite	once per discharge event
Zinc (Outfall 008 only)	µg/L	composite	once per discharge event
Vanadium[2]	µg/L	composite	annually
Aluminum[2]	µg/L	composite	annually
TCDD[9]	µg/L	composite	once per discharge event

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Perchlorate	µg/L	composite	once per discharge event[7]
Remaining USEPA priority pollutants excluding asbestos[11]	µg/L	composite/ grab for VOCs	annually[6]
Chlorpyrifos	µg/L	composite	annually[6]
Diazinon	µg/L	composite	annually[6]
Radioactivity [5] Gross Alpha Gross Beta	 pCi/L pCi/L	 composite composite	 once per discharge event once per discharge event
Combined Radium 226 & Radium 228[4]	pCi/L	composite	once per discharge event
Tritium[4]	pCi/L	composite	once per discharge event
Strontium-90[4]	pCi/L	composite	once per discharge event
H-3 (Radioactive Hydrogen)	pCi/L	composite	once per discharge event
K-40 (Potassium-40)	pCi/L	composite	once per discharge event
Cs-137	pCi/L	composite	once per discharge event
Uranium	pCi/L	composite	once per discharge event
Hardness as $CaCO_3$	mg/L	composite	annually
Acute toxicity	% survival	composite	annually
Chronic toxicity	TU_c	composite	First and second rain events of each year

D. The following shall constitute the effluent monitoring program from Outfalls 012 through 014.during storm events.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Rainfall	inches	continuous	continuous
Hardness as $CaCO_3$	mg/L	composite	annually
pH	pH units	grab	once per discharge event[12]
Temperature	°F	grab	once per discharge event[12]
Suspended solids	mg/L	composite	once per discharge event[12]
BOD_5 20°C	mg/L	composite	once per discharge event[12]
Settleable solids	mg/L	grab	once per discharge event[12]
Oil and grease	mg/L	grab	once per discharge event[12]
Ammonia-N	mg/L	composite	once per discharge event©[12]
Nitrate-N	mg/L	composite	once per discharge event[12]
Nitrite-N	mg/L	composite	once per discharge event[12]
Turbidity	NTU	composite	once per discharge event[12]

[7] Monitor once per discharge at Happy Valley (Outfall 008). Monitor semiannually at all other storm water only outfalls. If the results are nondetect for two years the Discharger may submit a request for the monitoring frequency to be decreased to annually with Executive Officer approval.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis[1]
Total dissolved solids	mg/L	composite	once per discharge event[12]
Total petroleum hydrocarbons[10]	µg/L	grab	once per discharge event[12]
Perchlorate	µg/L	composite	once per discharge event[12]
N-Nitrosodimethylamine	µg/L	composite	once per discharge event[12]
1,4-Dioxane	µg/L	composite	once per discharge event[12]
1,2,3-Trichloropropane	µg/L	grab	once per discharge event[12]
Ethylene dibromide	µg/L	grab	once per discharge event[12]
Methyl tertiary butyl ether (MTBE)	µg/L	grab	once per discharge event[12]
Naphthalene	µg/L	composite	once per discharge event[12]
Di-isopropyl Ether (DIPE)	µg/L	grab	once per discharge event[12]
Tertiary Butyl Alcohol (TBA)	µg/L	grab	once per discharge event[12]
Monomethyl hydrazine**	µg/L	grab	once per discharge event[12]
Chloride	µg/L	composite	once per discharge event[12]
Boron	µg/L	composite	once per discharge event[12]
Sulfate	µg/L	composite	once per discharge event[12]
Fluoride	µg/L	composite	once per discharge event[12]
Nitrate + Nitrite-N	µg/L	composite	once per discharge event[12]
Copper[2]	µg/L	composite	once per discharge event[12]
Lead[2]	µg/L	composite	once per discharge event[12]
Mercury[2]	µg/L	composite	once per discharge event[12]
Cadmium	µg/L	composite	once per discharge event[12]
Selenium	µg/L	composite	once per discharge event[12]
Zinc	µg/L	composite	once per discharge event[12]
TCDD*	µg/L	composite	once per discharge event[12]
Acute toxicity	% survival	composite	annually
Remaining USEPA priority pollutants excluding asbestos[11]	µg/L	composite/ grab for VOCs	annually

[10] Total petroleum hydrocarbons include all fuels, gasoline, and diesel and jet fuel. Analysis should be completed using EPA 8015 (modified) methods.
[11] Analysis shall include xylenes and trichlorofluoromethane. Analysis at Outfalls 008 and 009 shall include asbestos.
** This analysis is completed only for discharges from APTF.
[12] Monitoring shall occur once per discharge event for a minimum of eight discharge events or for each discharge event that occurs from December 20, 2007, through June 10, 2009. If the concentrations of the detected analytes do not exceed water quality based effluent limits established at downstream outfalls, the monitoring frequency may be decreased to annually.

IV. Toxicity Monitoring Requirements

A. Acute Toxicity Monitoring Program

1. The Discharger shall conduct acute toxicity tests on effluent grab samples by methods specified in 40 CFR Part 136 which cites USEPA's *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*, Fifth Edition. October 2002 (EPA/821-R-012) or a more recent edition to ensure compliance in 100 % effluent.

2. The fathead minnow, *Pimephales promelas*, shall be used as the test species for fresh water discharges and the topsmelt, *Atherinops affinis*, shall be used as the test species for brackish effluent. The method for topsmelt is found in USEPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002 (EPA/821-R-02-013).

3. In lieu of conducting the standard acute toxicity testing with the fathead minnow, the Discharger may elect to report the results or endpoint from the first 48 hours of the chronic toxicity test as the results of the acute toxicity test.

B. Chronic Toxicity Effluent Monitoring Program

1. The Discharger shall conduct critical life stage chronic toxicity tests on effluent samples (24-hour composite) or receiving water samples in accordance with EPA's Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002 (EPA/821-R-02-013) or EPA's Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition, October 2002, (EPA/821-R-02-014).

2. Effluent samples shall be collected after all treatment processes and before discharge to the receiving water.

3. Test Species and Methods:

   a. The Discharger shall conduct tests as follows: with a vertebrate, an invertebrate, and an alga for the first three suites of tests. After the screening period, monitoring shall be conducted using the most sensitive species.

   b. Re-screening is required every 15 months. The Discharger shall

re-screen with the three species listed above and continue to monitor with the most sensitive species. If the first suite of re-screening tests demonstrates that the same species is the most sensitive than the re-screening does not need to include more that one suite of tests. If a different species is the most sensitive or if there is ambiguity then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites.

c. The presence of chronic toxicity shall be estimated as specified using West Coast marine organisms according to EPA' s Short-Term Methods for Estimating Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002 (EPA/821-R-02-013).

C. Quality Assurance

1. Concurrent testing with a reference toxicant shall be conducted. Reference toxicant tests shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).

2. If either the reference toxicant test or effluent test does not meet all test acceptability criteria (TAC) as specified in the test methods manuals (EPA/600/4-91/002 and EPA/821-R-02-013), then the Discharger must re-sample and re-test within 14 days of notification by the laboratory of an invalid test.

3. Control and dilution water shall be receiving water or laboratory water as described in the manual. If the dilution water used is different from the culture water, a second control using culture water shall be used.

D. Accelerated Monitoring

1. If toxicity exceeds the limitations (as defined in Order No. R4-2007-0055, Section I.D.4.a.1. and 1.D.4.b.1), then the Discharger shall immediately implement accelerated testing, as specified at Section I.D.4.a.2 and 1.D.4.b.2. The discharger shall ensure that they receive results of a failing toxicity test within 24 hours of the completion of the test and the additional tests shall begin within 3 business days of receipt of the results or at the first opportunity of discharge. If the accelerated testing shows consistent toxicity, the discharger shall immediately implement the Initial Investigation of the TRE Workplan.

2. If implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.), then the Discharger may discontinue the TIE.

3. The first step in the initial Investigation TRE Workplan for downstream receiving water toxicity can be a toxicity test protocol designed to determine if the effluent causes or contributes to the measured downstream chronic toxicity. If this first step TRE testing shows that the outfall effluent does not cause or contribute to downstream chronic toxicity, using EPA's Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002(EPA/821-R-02-013). Then a report on this testing shall be submitted to the Board and the TRE will be considered to be completed. Routine testing in accordance with MRP No. 6027 shall be continued thereafter.

E. Steps in Toxicity Reduction Evaluation (TRE) and Toxicity Identification Evaluation (TIE)

1. Following a TRE trigger, the Discharger shall initiate a TRE in accordance with the facility's initial investigation TRE workplan. At a minimum, the Discharger shall use EPA manuals EPA/600/2-88/070 (industrial) or EPA/833B-99/002 (municipal) as guidance. The Discharger shall expeditiously develop a more detailed TRE workplan for submittal to the Executive Officer within 30 days of the trigger, which will include, but not be limited to:

   a. Further actions to investigate and identify the cause of toxicity;

   b. Actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity;

   c. Standards the Discharger will apply to consider the TRE complete and to return to normal sampling frequency; and,

   d. A schedule for these actions

2. The following is a stepwise approach in conducting the TRE:

   a. Step 1 - Basic data collection. Data collected for the accelerated monitoring requirements may be used to conduct the TRE;

   b. Step 2 - Evaluates optimization of the treatment system operation, facility housekeeping, and the selection and use of in-plant process chemicals;

   c. If Steps 1 and 2 are unsuccessful, Step 3 implements a Toxicity Identification Evaluation (TIE) and employment of all reasonable

efforts and using currently available TIE methodologies. The objective of the TIE is to identify the substance or combination of substances causing the observed toxicity;

d. Assuming successful identification or characterization of the toxicant(s), Step 4 evaluates final effluent treatment options;

e. Step 5 evaluates in-plant treatment options; and,

f. Step 6 consists of confirmation once a toxicity control method has been implemented.

Many recommended TRE elements parallel source control, pollution prevention, and storm water control program best management practices (BMPs). To prevent duplication of efforts, evidence of implementation of these control measures may be sufficient to comply with TRE requirements. By requiring the first steps of a TRE to be accelerated testing and review of the facility's TRE workplan, a TRE may be ended in its early stages. All reasonable steps shall be taken to reduce toxicity to the required level. The TRE may be ended at any stage if monitoring indicates there is no longer toxicity (or six consecutive chronic toxicity results are less than or equal to 1.0 TU_c).

3. The Discharger may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. The Discharger shall use the EPA acute and chronic manuals, EPA/600/6-91/005F (Phase I)/EPA/600/R-96-054 (for marine), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III) as guidance.

4. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Part I.C.4.a.2 and Part I.C.4.b.2 of this permit, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Executive Officer.

5. Toxicity tests conducted as part of a TRE/TIE may also be used for compliance, if appropriate.

6. The Board recognizes that toxicity may be episodic and identification of causes of and reduction of sources of toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

F. Reporting

1. The Discharger shall submit a full report of the toxicity test results, including any accelerated testing conducted during the month as required by this permit. Test results shall be reported in Toxicity Units (percent survival or TU_c) with the discharge monitoring reports (DMR) for the month in which the test is conducted.

   If an initial investigation indicates the source of toxicity and accelerated testing is unnecessary, pursuant to Section IV.C.1., those results shall also be submitted with the DMR for the period in which the Investigation occurred.

2. The full report shall be submitted on or before the end of the month in which the DMR is submitted.

3. The full report shall consist of (1) the results; (2) the dates of sample collection, initiation, and completion of each toxicity tests; (3) the acute toxicity limit or chronic toxicity limit or trigger as described in Order No. R4-2009-00XX sections I.C.4.a.1. and I.C.4.b.1; and (4)printout of the ToxCalc or CETIS program results.

4. Test results for toxicity tests also shall be reported according to the appropriate manual chapter on Report Preparation and shall be attached to the DMR. Routine reporting shall include, at a minimum, as applicable, for each test:

5. sample date(s);

6. test initiation date;

7. test species;

8. end point values for each dilution (e.g., number of young, growth rate, percent survival);

9. NOEC value(s) in percent effluent;

10. IC_{15}, IC_{25}, IC_{40} and IC_{50} values in percent effluent;

11. TU_c values $\left(TU_c = \frac{100}{NOEC}\right)$;

12. Mean percent mortality (±standard deviation) after 96 hours in 100% effluent (if applicable);

13. NOEC and LOEC values for reference toxicant test(s);

14. IC_{25} value for reference toxicant test(s);

15. Any applicable control charts; and

16. Available water quality measurements for each test (e.g., pH, D.O., temperature, conductivity, hardness, salinity, ammonia).

17. The Discharger shall provide a compliance summary, which includes a summary table of toxicity data from at least eleven of the most recent samples.

The Discharger shall notify, by telephone or electronically, this Regional Board of any toxicity exceedance of the limit or trigger within 24 hours of receipt of the results followed by a written report within 14 calendar days of receipt of the results. The verbal or electronic notification shall include the exceedance and the plan the Discharger will pursue. The written report shall describe actions the Discharger has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by the permit, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

V. Receiving Water Monitoring Requirements

A. Receiving Water Monitoring for TMDL based effluent limitations established for Calleguas Creek and its tributaries and for priority pollutants in both Arroyo Simi and Bell Creek. Monitoring will occur in Arroyo Simi in the area where storm water runoff discharges enters the receiving water and where storm water discharges enter Bell Creek (downstream of the SSFL facility).

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Water velocity	Ft/second	recorder[8]	quarterly[1,2]
Hardness as $CaCO_3$	mg/L	grab	quarterly[1,2]
pH	pH units	grab	quarterly[1,2]
Temperature	°F	grab	quarterly[1,2]
Chlorpyrifos	µg/L	grab	quarterly[1,2]

[8] The Discharger will use the flow of the process water used for quenching with the time of the test to calculate the total volume of water used.
[9] All seventeen congeners of TCDD must be analyzed as stipulated in State Implementation Policy. After four consecutive samples are reported as nondetect the sampling frequency may be decreased to quarterly. If detected subsequently, the frequency reverts back to once per discharge event.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Diazinon	µg/L	grab	quarterly[1,2]
Chlordane	µg/L	grab	quarterly[1,2]
4,4-DDD	µg/L	grab	quarterly[1,2]
4,4-DDE	µg/L	grab	quarterly[1,2]
4,4-DDT	µg/L	grab	quarterly[1,2]
Dieldrin	µg/L	grab	quarterly[1,2]
PCBs	µg/L	grab	quarterly[1,2]
Toxaphene	µg/L	grab	quarterly[1,2]
Priority pollutants	µg/L	grab	once every five years[2,3]

1 Samples collected quarterly. Compliance is determined by comparing the final concentration to the limits listed in Finding I.C.1. and I.C.2. of Order R4-2009-00XX. The final concentration is the average of the samples collected over one year.

2 Sampling should occur where discharges from SSFL enter Arroyo Simi.

3. Sampling should occur where discharges from SSFL enter Bell Creek.

B. The receiving water monitoring program shall include periodic surveys of receiving water and shall include studies of those physical-chemical characteristics of the receiving water that may be impacted by the discharge.

1. Receiving Water Observations. General observations of the receiving water shall be made at each discharge point on a monthly basis and shall be reported in the quarterly monitoring report. If no discharge occurred during the observation period, this shall be reported.

   Observations shall be descriptive where applicable, such that colors, approximate amounts, or types of materials that are apparent. The following observations shall be made where appropriate:

   a. Tidal stage, time, and date of monitoring
   b. Weather conditions
   c. Color of water
   d. Appearance of oil films or grease, or floatable materials
   e. Extent of visible turbidity or color patches
   f. Direction of tidal flow
   g. Description of odor, if any, of the receiving water
   h. Presence and activity of California Least Tern and California Brown Pelican.

VI. Sediment Sampling

The Calleguas Creek OC Pesticides and PCBs TMDL includes requirements for the concentrations of several pesticides and PCBs in sediment. Therefore this permit includes requirements to monitor sediment for these constituents. The Discharger may choose to join the Calleguas Creek Watershed TMDL Monitoring Program (CCWTMP) and collect

the required sediment samples along with a host of other stakeholders in the watershed. This facility is located in Arroyo Simi and the Compliance Sampling Site locations stipulated in the TMDL documentation are Arroyo Simi East of Hitch Boulevard (07_HITCH) or Simi Valley Water Quality Control Plant (07D_SIMI). As an alternative the Discharger may choose to collect the sediment samples at the base of the subwatershed where the discharge occurs. The exact location of the sampling point must be stipulated in the initial self-monitoring report.

The in –stream sediment sampling shall be conducted according to methods developed by the USGS and outlined in *Guidelines for Collecting and Processing Samples of Stream Bed Sediment for Analysis of Trace Elements and Organic Contaminants for the National Water Quality Assessment Program* (1994). A brief description of the protocol also appears in the *Draft Calleguas Creek Watershed Management Plan Quality Assurance Project Plan (QAPP) Monitoring and Reporting Program Plan for Nitrogen, OC and PCBs, and Toxicity Total Maximum Daily Loads* dated September 26, 2006, beginning on page 38. Discussions include field measurements and observations, sample handling and custody, sample handling and shipping, and analytical methods.

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Sediment toxicity (chronic 10-day eohaustorius estuarius toxicity)	NA	grab	annually
48-hour Bivalve Embryo toxicity (Mytilus edulis or Crassostrea gigas)	NA	grab	annually
Total ammonia	mg/wet kg	grab	annually
% Moisture	%	grab	annually
Particle Size Distribution	um	grab	annually
Total Organic Carbon	% dry weight	grab	annually
Water velocity	ft/sec	grab	annually
pH	pH Units	grab	annually
Temperature	ºC	grab	annually
Dissolved Oxygen	mg/L	grab	annually
Conductivity	umhos/cm	grab	annually
Chlordane	ng/g	grab	annually
4,4-DDD	ng/g	grab	annually
4,4-DDE	ng/g	grab	annually
4,4-DDT	ng/g	grab	annually
Dieldrin	ng/g	grab	annually
PCBs	ng/g	grab	annually
Toxaphene	ng/g	grab	annually

VIII. Bioassessment Monitoring

The goals of the bioassessment monitoring for the Arroyo Simi and Los Angeles River are to:

- Determine compliance with receiving water limits;
- Monitor trends in surface water quality;
- Ensure protection of beneficial uses;
- Provide data for modeling contaminants of concern;
- Characterize water quality including seasonal variation of surface waters within the watershed;
- Assess the health of the biological community; and
- Determine mixing dynamics of effluent and receiving waters in the estuary.

Ordered by: _____ Date: May 8, 2009

Tracy J. Egoscue
Executive Officer

/CDO

Attachment T-A

SWRCB Minimum Levels in ppb (µg/L)

The Minimum Levels (MLs) in this appendix are for use in reporting and compliance determination purposes in accordance with section 2.4 of the State Implementation Policy. These MLs were derived from data for priority pollutants provided by State certified analytical laboratories in 1997 and 1998. These MLs shall be used until new values are adopted by the SWRCB and become effective. The following tables (Tables 2a - 2d) present MLs for four major chemical groupings: volatile substances, semi-volatile substances, inorganics, and pesticides and PCBs.

Table 2a - VOLATILE SUBSTANCES*	GC	GCMS
1,1 Dichloroethane	0.5	1
1,1 Dichloroethylene	0.5	2
1,1,1 Trichloroethane	0.5	2
1,1,2 Trichloroethane	0.5	2
1,1,2,2 Tetrachloroethane	0.5	1
1,2 Dichlorobenzene (volatile)	0.5	2
1,2 Dichloroethane	0.5	2
1,2 Dichloropropane	0.5	1
1,3 Dichlorobenzene (volatile)	0.5	2
1,3 Dichloropropene (volatile)	0.5	2
1,4 Dichlorobenzene (volatile)	0.5	2
Acrolein	2.0	5
Acrylonitrile	2.0	2
Benzene	0.5	2
Bromoform	0.5	2
Methyl Bromide	1.0	2
Carbon Tetrachloride	0.5	2
Chlorobenzene	0.5	2
Chlorodibromo-methane	0.5	2
Chloroethane	0.5	2
Chloroform	0.5	2
Chloromethane	0.5	2
Dichlorobromo-methane	0.5	2
Dichloromethane	0.5	2
Ethylbenzene	0.5	2
Tetrachloroethylene	0.5	2
Toluene	0.5	2
Trans-1,2 Dichloroethylene	0.5	1
Trichloroethene	0.5	2
Vinyl Chloride	0.5	2

*The normal method-specific factor for these substances is 1; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.

Table 2b - SEMI-VOLATILE SUBSTANCES*	GC	GCMS	LC	COLOR
Benzo (a) Anthracene	10	5		
1,2 Dichlorobenzene (semivolatile)	2	2		
1,2 Diphenylhydrazine		1		
1,2,4 Trichlorobenzene	1	5		
1,3 Dichlorobenzene (semivolatile)	2	1		
1,4 Dichlorobenzene (semivolatile)	2	1		
2 Chlorophenol	2	5		
2,4 Dichlorophenol	1	5		
2,4 Dimethylphenol	1	2		
2,4 Dinitrophenol	5	5		
2,4 Dinitrotoluene	10	5		
2,4,6 Trichlorophenol	10	10		
2,6 Dinitrotoluene		5		
2- Nitrophenol		10		
2-Chloroethyl vinyl ether	1	1		
2-Chloronaphthalene		10		
3,3' Dichlorobenzidine		5		
Benzo (b) Fluoranthene		10	10	
3-Methyl-Chlorophenol	5	1		
4,6 Dinitro-2-methylphenol	10	5		
4- Nitrophenol	5	10		
4-Bromophenyl phenyl ether	10	5		
4-Chlorophenyl phenyl ether		5		
Acenaphthene	1	1	0.5	
Acenaphthylene		10	0.2	
Anthracene		10	2	
Benzidine		5		
Benzo(a) pyrene		10	2	
Benzo(g,h,i)perylene		5	0.1	
Benzo(k)fluoranthene		10	2	
bis 2-(1-Chloroethoxyl) methane		5		
bis(2-chloroethyl) ether	10	1		
bis(2-Chloroisopropyl) ether	10	2		
bis(2-Ethylhexyl) phthalate	10	5		
Butyl benzyl phthalate	10	10		
Chrysene		10	5	
di-n-Butyl phthalate		10		
di-n-Octyl phthalate		10		
Dibenzo(a,h)-anthracene		10	0.1	
Diethyl phthalate	10	2		
Dimethyl phthalate	10	2		
Fluoranthene	10	1	0.05	
Fluorene		10	0.1	

Table 2b - SEMI-VOLATILE SUBSTANCES*	GC	GCMS	LC	COLOR
Hexachloro-cyclopentadiene	5	5		
Hexachlorobenzene	5	1		
Hexachlorobutadiene	5	1		
Hexachloroethane	5	1		
Indeno(1,2,3,cd)-pyrene		10	0.05	
Isophorone	10	1		
N-Nitroso diphenyl amine	10	1		
N-Nitroso-dimethyl amine	10	5		
N-Nitroso -di n-propyl amine	10	5		
Naphthalene	10	1	0.2	
Nitrobenzene	10	1		
Pentachlorophenol	1	5		
Phenanthrene		5	0.05	
Phenol **	1	1		50
Pyrene		10	0.05	

* With the exception of phenol by colorimetric technique, the normal method-specific factor for these substances is 1,000; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance multiplied by 1,000.

** Phenol by colorimetric technique has a factor of 1.

Table 2c – INORGANICS*	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAA	COLOR	DCP
Antimony	10	5	50	0.5	5	0.5			1,000
Arsenic		2	10	2	2	1		20	1,000
Beryllium	20	0.5	2	0.5	1				1,000
Cadmium	10	0.5	10	0.25	0.5				1,000
Chromium (total)	50	2	10	0.5	1				1,000
Chromium VI	5							10	
Copper	25	5	10	0.5	2				1,000
Cyanide								5	
Lead	20	5	5	0.5	2				10,000
Mercury				0.5			0.2		
Nickel	50	5	20	1	5				1,000
Selenium		5	10	2	5	1			1,000
Silver	10	1	10	0.25	2				1,000
Thallium	10	2	10	1	5				1,000
Zinc	20		20	1	10				1,000

* The normal method-specific factor for these substances is 1; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.

Table 2d – PESTICIDES – PCBs*	GC
4,4'-DDD	0.05
4,4'-DDE	0.05
4,4'-DDT	0.01
a-Endosulfan	0.02
alpha-BHC	0.01
Aldrin	0.005
b-Endosulfan	0.01
Beta-BHC	0.005
Chlordane	0.1
Delta-BHC	0.005
Dieldrin	0.01
Endosulfan Sulfate	0.05
Endrin	0.01
Endrin Aldehyde	0.01
Heptachlor	0.01
Heptachlor Epoxide	0.01
Gamma-BHC (Lindane)	0.02
PCB 1016	0.5
PCB 1221	0.5
PCB 1232	0.5
PCB 1242	0.5
PCB 1248	0.5
PCB 1254	0.5
PCB 1260	0.5
Toxaphene	0.5

* The normal method-specific factor for these substances is 100; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance multiplied by 100.

Techniques:

GC - Gas Chromatography
GCMS - Gas Chromatography/Mass Spectrometry
HRGCMS - High Resolution Gas Chromatography/Mass Spectrometry (i.e., EPA 1613, 1624, or 1625)
LC - High Pressure Liquid Chromatography
FAA - Flame Atomic Absorption
GFAA - Graphite Furnace Atomic Absorption
HYDRIDE - Gaseous Hydride Atomic Absorption
CVAA - Cold Vapor Atomic Absorption
ICP - Inductively Coupled Plasma
ICPMS - Inductively Coupled Plasma/Mass Spectrometry
SPGFAA - Stabilized Platform Graphite Furnace Atomic Absorption (i.e., EPA 200.9)
DCP - Direct Current Plasma
COLOR - Colorimetric