

APPENDIX F

FIRST QUARTER 2012 REASONABLE POTENTIAL
ANALYSIS (RPA) SUMMARY TABLES

**FIRST QUARTER 2012 REASONABLE POTENTIAL ANALYSIS SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

1. The following Reasonable Potential Analysis (RPA) provides the analytical results as performed by the procedures outlined in *Reasonable Potential Analysis Methodology Technical Memo* (MWH and Flow Science, 2006).
2. The monitoring data set utilized to conduct the RPA consists of all applicable and relevant data from August 2004 through the present reporting quarter.
3. As directed by the CTR and the Regional Water Control Board 2,3,7,8-TCDD (Dioxin) values are to be expressed in NPDES permitting and this RPA as TCDD Total Equivalence units (TEQs). A TCDD TEQ is determined by multiplying each of the seventeen dioxin and furan congeners by their respective total equivalence factor (TEF), and summing the results of those products. For the purposes of this RPA, the resulting TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 53, of the NPDES Permit Effective June 29, 2009.
4. In calculating the average, standard deviation, coefficient of variation, and projected maximum effluent concentration (99/99), one-half of the MDL was used for concentration results reported as ND. Data reported with qualifiers were not included in this RPA as Boeing believes qualified data are not “appropriate, valid, relevant, (nor) representative”¹ of storm water constituents and are therefore not utilized in its RPA.
5. All of the following abbreviations and/or notes may not occur on every table.

Definition of Acronyms, Abbreviations, and Terminology Used

>=	Greater than or equal to
*	Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. The equations are provided in the CTR, (US EPA, 2000). Values displayed correspond to a total hardness of 100 mg/l.
µg/L	Concentration units, micrograms per liter
All Data Qualified	All available monitoring data are qualified and no statistical analysis is performed.
Annually	The 2009 NPDES Permit requires annual monitoring.
Available Data < DL	All available monitoring data that are not qualified are below detection limits.
B	Background
C	Concentration
CCC	Criterion Continuous Concentration
CMC	Criterion Maximum Concentration
CTR	California Toxics Rule
CV	Coefficient of Variation
DL	Detection Limit
EPA TSD	EPA’s Technical Support Document for Water Quality Based Toxics Control, (see references).

¹ SIP, p. 5.

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Nonpriority Pollutant RPA Column Explanation (Continued)

Step 1, Determine Water Quality Objectives	The water quality objective is based on appropriate Basin Plan criteria.
BU – Beneficial Use Protection, NC – Human noncarcinogen, AP- Aquatic Life Protection, TMDL – Total Maximum Daily Load	This is the Regional Board’s Basis for determining if reasonable potential should be evaluated for a non-priority pollutant.

Note: Boeing SSFL has completed appropriate statistical calculations, but defers the application of best professional judgment and the final determination of reasonable potential to the Regional Board Staff.

References

Los Angeles Regional Water Quality Control Board, “Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan).” June 13, 1994.

MWH and Flow Science, “Reasonable Potential Analysis Methodology Technical Memo- Version 1, Final, Santa Susan Field Laboratory, Ventura County, California.” April 28, 2006.

State Water Resources Control Board, “Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (SIP)” Resolution No. 2005-0019, February 24, 2005.

US EPA, *40CFR part 131, Water Quality Standards; Establishment of numeric Criteria for Priority Toxic Pollutants for the State of California*,(CTR) Federal Registry, May 18, 2000, pp. 31682-31719.

US EPA, “Technical Support Document for Water Quality-based Toxics Control.” EPA/505/2-90-001, PB-91-127415, March 1991.

Table F1
 REASONABLE POTENTIAL ANALYSIS FOR PRIORITY POLLUTANTS, (OUTFALL 009)

FIRST QUARTER 2012
 THE BOEING COMPANY
 SANTA SUSANA FIELD LABORATORY
 NPDES PERMIT CA0001309

				Step 1: Water Quality Criteria, Determine C							Step 3					
				CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C		
				Freshwater	Human Health											
				All Data Qualified	0.6	16.293279022	11.4	Narrative	Narrative	50	11.43	No	No	No	NA	No
3_7,9-10	006	Copper	ug/L	5.1	0.6		9.3	1300	NONE		9.33	Yes	Yes	NA	NA	No
3_7,9-10	007	Lead	ug/L	7.2	0.6		3.18	Narrative	Narrative		3.18	Yes	Yes	NA	NA	Yes
3_7,9-10	008	Mercury	ug/L	All Data Qualified	0.6	Reserved	Reserved	0.05	0.051	2	0.05	No	No	No	NA	No
3_7,9-10	009	Nickel	ug/L	All Data Qualified	0.6		52	610	4600	100	52.16	No	No	No	NA	No
3_7,9-10	010	Selenium	ug/L	Available Data <DL	0.6	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
3_7,9-10	011	Silver	ug/L	All Data Qualified	0.6		none	NONE	NONE		4.06	No	No	No	NA	No
3_7,9-10	012	Thallium	ug/L	Available Data <DL	0.6	NONE	NONE	1.7	6.3	2	2	Yes	No	No	NA	No
3_7,9-10	013	Zinc	ug/L	All Data Qualified	0.6		119.8	none	NONE		120	No	No	No	NA	No
3_7,9-10	014	Total Cyanide	ug/L	Available Data <DL	0.6	22	5.2	700	220000	200	5.2	Yes	No	No	NA	No
3_7,9-10	015	Asbestos	Fibers/L	All Data Qualified	0.6	NONE	NONE	7000000	NONE	7000000	700000	No	No	No	NA	No
3_7,9-10	016	TCDD TEQ_NoDNQ	ug/L	0.00000016132	0.6	NONE	NONE	1.30E-08	1.40E-08	3.00E-05	1.40E-08	Yes	Yes	NA	NA	Yes
3_7,9-10	017	Acrolein	ug/L	All Data Qualified	0.6	NONE	NONE	320	780		780	No	No	No	NA	No
3_7,9-10	018	Acrylonitrile	ug/L	All Data Qualified	0.6	NONE	NONE	0.059	0.66		0.66	No	No	No	NA	No
3_7,9-10	019	Benzene	ug/L	All Data Qualified	0.6	NONE	NONE	1.2	71	1	1	No	No	No	NA	No
3_7,9-10	020	Bromoform	ug/L	All Data Qualified	0.6	NONE	NONE	4.3	360		360	No	No	No	NA	No
3_7,9-10	021	Carbon Tetrachloride	ug/L	All Data Qualified	0.6	NONE	NONE	0.25	4.4	600	4.4	No	No	No	NA	No
3_7,9-10	022	Chlorobenzene	ug/L	All Data Qualified	0.6	NONE	NONE	680	21000		21000	No	No	No	NA	No
3_7,9-10	023	Dibromochloromethane	ug/L	All Data Qualified	0.6	NONE	NONE	0.401	34		34	No	No	No	NA	No
3_7,9-10	024	Chloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
3_7,9-10	025	2-Chloroethylvinylether	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
3_7,9-10	026	Chloroform	ug/L	All Data Qualified	0.6	NONE	NONE	Reserved	Reserved		NONE	No	No	No	NA	No
3_7,9-10	027	Bromodichloromethane	ug/L	All Data Qualified	0.6	NONE	NONE	0.56	46		46	No	No	No	NA	No
3_7,9-10	028	1,1-Dichloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE	5	5	No	No	No	NA	No
3_7,9-10	029	1,2-Dichloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	0.38	99	0.5	0.5	No	No	No	NA	No
3_7,9-10	030	1,1-Dichloroethene	ug/L	All Data Qualified	0.6	NONE	NONE	0.057	3.2	6	3.2	No	No	No	NA	No
3_7,9-10	031	1,2-Dichloropropane	ug/L	All Data Qualified	0.6	NONE	NONE	0.52	39	5	5	No	No	No	NA	No
3_7,9-10	032	1,3-Dichloropropene (Total)	ug/L	All Data Qualified	0.6	NONE	NONE	10	1700	0.5	0.5	No	No	No	NA	No
3_7,9-10	033	Ethylbenzene	ug/L	All Data Qualified	0.6	NONE	NONE	3100	29000	0.7	0.7	No	No	No	NA	No
3_7,9-10	034	Bromomethane	ug/L	All Data Qualified	0.6	NONE	NONE	48	4000		4000	No	No	No	NA	No
3_7,9-10	035	Chloromethane	ug/L	All Data Qualified	0.6	NONE	NONE	Narrative	Narrative		NONE	No	No	No	NA	No
3_7,9-10	036	Methylene chloride	ug/L	All Data Qualified	0.6	NONE	NONE	4.7	1600		1600	No	No	No	NA	No
3_7,9-10	037	1,1,2,2-Tetrachloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	0.17	11	1	1	No	No	No	NA	No
3_7,9-10	038	Tetrachloroethene	ug/L	All Data Qualified	0.6	NONE	NONE	0.8	8.85	5	5	No	No	No	NA	No
3_7,9-10	039	Toluene	ug/L	All Data Qualified	0.6	NONE	NONE	6800	200000	150	150	No	No	No	NA	No
3_7,9-10	040	trans-1,2-Dichloroethene	ug/L	All Data Qualified	0.6	NONE	NONE	700	140000	10	10	No	No	No	NA	No
3_7,9-10	041	1,1,1-Trichloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	Narrative	Narrative	200	200	No	No	No	NA	No
3_7,9-10	042	1,1,2-trichloroethane	ug/L	All Data Qualified	0.6	NONE	NONE	0.6	42	5	5	No	No	No	NA	No
3_7,9-10	043	Trichloroethene	ug/L	All Data Qualified	0.6	NONE	NONE	2.7	81	5	5	No	No	No	NA	No
3_7,9-10	044	Vinyl chloride	ug/L	All Data Qualified	0.6	NONE	NONE	2	525	0.5	0.5	No	No	No	NA	No
3_7,9-10	045	2-chlorophenol	ug/L	All Data Qualified	0.6	NONE	NONE	120	400		400	No	No	No	NA	No
3_7,9-10	046	2,4-Dichlorophenol	ug/L	All Data Qualified	0.6	NONE	NONE	93	790		790	No	No	No	NA	No
3_7,9-10	047	2,4-dimethylphenol	ug/L	All Data Qualified	0.6	NONE	NONE	540	2300		2300	No	No	No	NA	No

Table F1

Table F1
 REASONABLE POTENTIAL ANALYSIS FOR PRIORITY POLLUTANTS, (OUTFALL 009)

FIRST QUARTER 2012
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 NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C				Step 2		Step 3			Step 4	
						CTR CRITERIA				Basin Plan Title 22 GWR	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
Outfall	CTR	Constituent	Units	MEC	CV	Freshwater CMC = Acute	Human Health CCC = Chronic	HH W&O (Not App)	HH O = HH							
3_7,9-10	096	N-Nitrosodimethylamine	ug/L	All Data Qualified	0.6	NONE	NONE	0.00069	8.1		8.1	No	No	No	NA	No
3_7,9-10	097	n-Nitroso-di-n-propylamine	ug/L	All Data Qualified	0.6	NONE	NONE	0.005	1.4		1.4	No	No	No	NA	No
3_7,9-10	098	N-Nitrosodiphenylamine	ug/L	All Data Qualified	0.6	NONE	NONE	5	16		16	No	No	No	NA	No
3_7,9-10	099	Phenanthrene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
3_7,9-10	100	Pyrene	ug/L	All Data Qualified	0.6	NONE	NONE	960	11000		11000	No	No	No	NA	No
3_7,9-10	101	1,2,4-Trichlorobenzene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
3_7,9-10	102	Aldrin	ug/L	All Data Qualified	0.6	3	NONE	0.00013	0.00014		0.00014	No	No	No	NA	No
3_7,9-10	103	alpha-BHC	ug/L	All Data Qualified	0.6	NONE	NONE	0.0039	0.013		0.013	No	No	No	NA	No
3_7,9-10	104	beta-BHC	ug/L	All Data Qualified	0.6	NONE	NONE	0.014	0.046		0.046	No	No	No	NA	No
3_7,9-10	105	Lindane (gamma-BHC)	ug/L	All Data Qualified	0.6	0.95	NONE	0.019	0.063	0.2	0.063	No	No	No	NA	No
3_7,9-10	106	delta-BHC	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
3_7,9-10	107	Chlordane	ug/L	All Data Qualified	0.6	2.4	0.0043	0.00057	0.00059		0.00059	No	No	No	NA	No
3_7,9-10	108	4,4'-DDT	ug/L	All Data Qualified	0.6	1.1	0.001	0.00059	0.00059		0.00059	No	No	No	NA	No
3_7,9-10	109	4,4'-DDE	ug/L	All Data Qualified	0.6	NONE	NONE	0.00059	0.00059		0.00059	No	No	No	NA	No
3_7,9-10	110	4,4'-DDD	ug/L	All Data Qualified	0.6	NONE	NONE	0.00083	0.00084		0.00084	No	No	No	NA	No
3_7,9-10	111	Dieldrin	ug/L	All Data Qualified	0.6	0.24	0.056	0.00014	0.00014		0.00014	No	No	No	NA	No
3_7,9-10	112	Endosulfan I	ug/L	All Data Qualified	0.6	0.22	0.056	110	240		0.056	No	No	No	NA	No
3_7,9-10	113	Endosulfan II	ug/L	All Data Qualified	0.6	0.22	0.056	110	240		0.056	No	No	No	NA	No
3_7,9-10	114	Endosulfan Sulfate	ug/L	All Data Qualified	0.6	NONE	NONE	110	240		240	No	No	No	NA	No
3_7,9-10	115	Endrin	ug/L	All Data Qualified	0.6	0.086	0.036	0.76	0.81		0.036	No	No	No	NA	No
3_7,9-10	116	Endrin Aldehyde	ug/L	All Data Qualified	0.6	NONE	NONE	0.76	0.81		0.81	No	No	No	NA	No
3_7,9-10	117	Heptachlor	ug/L	All Data Qualified	0.6	0.52	0.0038	0.00021	0.00021		0.00021	No	No	No	NA	No
3_7,9-10	118	Heptachlor Epoxide	ug/L	All Data Qualified	0.6	0.52	0.0038	0.0001	0.00011		0.00011	No	No	No	NA	No
3_7,9-10	119	Aroclor-1016	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	120	Aroclor-1221	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	121	Aroclor-1232	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	122	Aroclor-1242	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	123	Aroclor-1248	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	124	Aroclor-1254	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	125	Aroclor-1260	ug/L	Available Data <DL	0.6	NONE	0.014	0.00017	0.00017		0.00017	Yes	No	Yes	0.00017	No
3_7,9-10	126	Toxaphene	ug/L	All Data Qualified	0.6	0.73	0.0002	0.0073	0.00075		0.0002	No	No	No	NA	No
3_7,9-10	127	E. Coli	MPN/100 ml	9	0.6	NA	NA	NA	NA	235	MPN/100 ml	Yes	Yes	NA	NA	Yes

Table F1

Table F1
REASONABLE POTENTIAL ANALYSIS FOR PRIORITY POLLUTANTS, (OUTFALL 019)

FIRST QUARTER 2012
THE BOEING COMPANY
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NPDES PERMIT CA0001309

Step 2

Step 4

Outfall

Table F2
 REASONABLE POTENTIAL ANALYSIS FOR SECONDARY POLLUTANTS, (OUTFALL 019)

FIRST QUARTER 2012
 THE BOEING COMPANY
 SANTA SUSANA FIELD LABORATORY
 NPDES PERMIT CA0001309

Outfall	Constituent	Monitoring Units	Number of Samples	MEC	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection
19	Barium	Annual	1	0.026	0.6	13.20	0.34	0	0	0.34	1000	BU
19	Biochemical Oxygen Demand (BOD 5 day)	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	20	BU
19	Chloride	Discharge	2	44	0.6	7.39	325.32	0	0	325.32	150	BU
19	Fluoride	Discharge	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1.6	BU
19	Nitrate + Nitrite as Nitrogen (N)	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	8	BU/TMDL
19	Oil & Grease	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	10	BU
19	Sulfate	Discharge	2	190	0.6	7.39	1404.80	0	0	1404.80	300	BU
19	Surfactants (MBAS)	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	0.5	BU
19	Total Dissolved Solids	Discharge	2	570	0.6	7.39	4214.40	0	0	4214.40	150	BU
19	Total Settleable Solids	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	0.3	BU
19	Total Suspended Solids	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	45	BU
3_7,9-10	Boron	Annual	1	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1	BU
3_7,9-10	Chloride	Discharge	3	2	0.6	5.62	11.24	0	0	11.24	150	BU
3_7,9-10	Fluoride	Annual	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1.6	BU
3_7,9-10	Nitrate + Nitrite as Nitrogen (N)	Discharge	3	0.37	0.6	5.62	2.08	0	0	2.08	8	BU/TMDL
3_7,9-10	Oil & Grease	Discharge	2	Available Data <DL	0.6	7.39	Available Data < DL	0	0	NA	10	BU
3_7,9-10	Sulfate	Discharge	3	18	0.6	5.62	101.20	0	0	101.20	300	BU
3_7,9-10	Total Dissolved Solids	Discharge	3	65	0.6	5.62	365.46	0	0	365.46	150	BU
3_7,9-10	Total Suspended Solids	Annual	2	33	0.6	7.39	243.99	0	0	243.99	45	BU