

APPENDIX F

THIRD QUARTER 2011 REASONABLE POTENTIAL  
ANALYSIS (RPA) SUMMARY TABLES

**THIRD QUARTER 2011 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"<sup>1</sup> 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.

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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).

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<sup>1</sup> SIP, p. 5.

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C = Lowest Criteria	The comparison concentration (C) is equal to the lowest criterion for a constituent based on the CMC, CCC, HH O, and Basin Plan Criteria listed.
<u>Priority Pollutant RPA Column Explanation (Continued)</u>	
<i>Step 2 defines the applicable data set.</i>	
Is Effluent Data Available	If there is available monitoring data that is not qualified and above DL, then YES. If not, then NO.
<i>Step 3 determines the maximum observed effluent concentration.</i>	
Was Constituent Detected in Effluent Data	If the constituent was detected, then YES. If all monitoring data are non-detect or qualified then NO.
Are all DL >C	If constituent was detected in effluent data then not applicable (NA). If constituent was not detected and all analysis detection limits are less than the comparison concentration, then YES, if not then NO.
If DL > C MEC = Min (DL)	If the previous cell answer was yes, then the MEC is equal to the minimum detection limit. If not, then NA.
<i>Step 4 compares the MEC to the lowest applicable water quality criteria.</i>	
MEC >= C	If the MEC is greater than or equal to the comparison concentration then YES, if not then NO.

Note: Steps 5 and 6 of the Priority Pollutant RPA do not apply to Boeing SSFL because the Regional Board gives no consideration for receiving water background constituent concentrations. Furthermore, Boeing SSFL defers the application of best professional judgment in Step 7 and final determination of reasonable potential in Step 8 to the Regional Board Staff.

Nonpriority Pollutant RPA Column Explanation

Constituent	Provides the Non Priority Pollutant constituent common name
Monitoring	Provides the 2009 NPDES Permit directed monitoring frequency
Units	Provides the data set's concentration units as referenced by 2009 NPDES Permit
Number of Samples	Provides the number of available samples that are not qualified
MEC	Provides the outfall monitoring group's maximum value from the applicable data set
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Multiplier	Utilizes the EPA's TSD calculation to determine multiplier for which the maximum effluent concentration is calculated. (MWH and Flow Science, 2006, or EPA TSD, 1991)
Projected Maximum Effluent Concentration	Utilizes the product of the multiplier and the MEC as an estimate for the projected maximum effluent concentration.
Dilution Ratio	The Regional Board allocates no dilution ratio to Boeing SSFL.
Background Concentration	The Regional Board allocates no background concentration to Boeing SSFL.
Projected Maximum Receiving Water Concentration	The Regional Board estimates the projected maximum receiving water concentration as equal to the projected maximum effluent concentration.

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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; Establish and 131, 705um

US EPA, Technical Support Document. Control of PCBs, 12715 Mrch, 194.





**Table F1  
 REASONABLE POTENTIAL ANALYSIS FOR PRIORITY POLLUTANTS, (OUTFALLS 001, 002, 011 and 018)**

**THIRD QUARTER 2011  
 THE BOEING COMPANY  
 SANTA SUSANA FIELD LABORATORY  
 NPDES PERMIT CA0001309**

**Step 1: Water Quality Criteria, Determine C**

**Step 2**

**Step 3**

**Step 4**

<b>Outfall</b>	<b>CTR</b>	<b>Constituent</b>	<b>Units</b>	<b>MEC</b>	<b>CV</b>	<b>Freshwater</b> CMC = Acute CCC = Chronic	<b>Human Health</b> HH W&O (Not App) HH O = HH	<b>Title 22 GWR</b>	<b>MEC &gt;= C</b>
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**Table F2  
REASONABLE POTENTIAL ANALYSIS FOR SECONDARY POLLUTANTS, (OUTFALLS 001, 002, 011 018)**

**THIRD QUARTER 2011  
THE BOEING COMPANY  
SANTA SUSANA FIELD LABORATORY  
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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
1_2_11_18	Barium	Annual	mg/L	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1000	BU
1_2_11_18	Biochemical Oxygen Demand (BOD 5 day)	Discharge	mg/L	2	1.7	0.6	7.4	12.6	0	0	12.6	20	BU
1_2_11_18	Chloride	Discharge	mg/L	2	42	0.6	7.4	310.5	0	0	310.5	150	BU
1_2_11_18	Fluoride	Annual	mg/L	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1.6	BU
1_2_11_18	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	2	Available Data <DL	0.6	7.4	Available Data < DL	0	0	NA	8	BU/TMDL
1_2_11_18	Oil & Grease	Discharge	mg/L	2	Available Data <DL	0.6	7.4	Available Data < DL	0	0	NA	10	BU
1_2_11_18	Sulfate	Discharge	mg/L	2	140	0.6	7.4	1035.1	0	0	1035.1	300	BU
1_2_11_18	Surfactants (MBAS)	Discharge	mg/L	2	0.093	0.6	7.4	0.7	0	0	0.7	0.5	BU
1_2_11_18	Total Dissolved Solids	Discharge	mg/L	2	440	0.6	7.4	3253.2	0	0	3253.2	150	BU
1_2_11_18	Total Settleable Solids	Discharge	ml/L	2	Available Data <DL	0.6	7.4	Available Data < DL	0	0	NA	0.3	BU
1_2_11_18	Total Suspended Solids	Discharge	mg/L	2	Available Data <DL	0.6	7.4	Available Data < DL	0	0	N		



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

**THIRD QUARTER 2011  
THE BOEING COMPANY  
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NPDES PERMIT CA0001309**

						Step 1: Water Quality Criteria, Determine C					Step 2	Step 3			Step 4	
						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
Outfall	CTR	Constituent	Units	MEC	CV	Freshwater CMC = Acute	Human Health CCC = Chronic	HH W&O (Not App)	HH O = HH	Title 22 GWR						
19	046	2,4-Dichlorophenol	ug/L	All Data Qualified	0.6	NONE	NONE	93	790		790	No	No	No	NA	No
19	047	2,4-dimethylphenol	ug/L	All Data Qualified	0.6	NONE	NONE	540	2300		2300	No	No	No	NA	No
19	048	2-Methyl-4,6-dinitrophenol	ug/L	All Data Qualified	0.6	NONE	NONE	13.4	765		765	No	No	No	NA	No
19	049	2,4-dinitrophenol	ug/L	All Data Qualified	0.6	NONE	NONE	70	14000		14000	No	No	No	NA	No
19	050	2-nitrophenol	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	051	4-nitrophenol	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	052	4-Chloro-3-methylphenol	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	053	Pentachlorophenol	ug/L	Available Data <DL	0.6	pH dependent	pH dependent	0.28	8.2	1	1	Yes	No	No	NA	No
19	054	Phenol	ug/L	All Data Qualified	0.6	NONE	NONE	21000	4600000		4600000	No	No	No	NA	No
19	055	2,4,6-Trichlorophenol	ug/L	Available Data <DL	0.6	NONE	NONE	2.1	6.5		6.5	Yes	No	No	NA	No
19	056	Acenaphthene	ug/L	All Data Qualified	0.6	NONE	NONE	1200	2700		2700	No	No	No	NA	No
19	057	Acenaphthylene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	058	Anthracene	ug/L	All Data Qualified	0.6	NONE	NONE	9600	NON999E							

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

**THIRD QUARTER 2011  
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Outfall	CTR	Constituent	Units	MEC	CV	Step 1: Water Quality Criteria, Determine C					C = Lowest Criteria	Step 2 Is Effluent Data Available	Step 3 Was Constituent Detected in Effluent Data	Step 3 Are all Detection Limits > C	Step 3 If DL > C, MEC = Min (DL)	Step 4 MEC >= C
						CTR CRITERIA				Basin Plan Title 22 GWR						
						Freshwater		Human Health								
						CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
19	092	Indeno(1,2,3-cd)Pyrene	ug/L	All Data Qualified	0.6	NONE	NONE	0.0044	0.049		0.049	No	No	No	NA	No
19	093	Isophorone	ug/L	All Data Qualified	0.6	NONE	NONE	8.4	600		600	No	No	No	NA	No
19	094	Naphthalene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	095	Nitrobenzene	ug/L	All Data Qualified	0.6	NONE	NONE	17	1900		1900	No	No	No	NA	No
19	096	N-Nitrosodimethylamine	ug/L	Available Data <DL	0.6	NONE	NONE	0.00069	8.1		8.1	Yes	No	No	NA	No
19	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
19	098	N-Nitrosodiphenylamine	ug/L	All Data Qualified	0.6	NONE	NONE	5	16		16	No	No	No	NA	No
19	099	Phenanthrene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	100	Pyrene	ug/L	All Data Qualified	0.6	NONE	NONE	960	11000		11000	No	No	No	NA	No
19	101	1,2,4-Trichlorobenzene	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	102	Aldrin	ug/L	All Data Qualified	0.6	3	NONE	0.00013	0.00014		0.00014	No	No	No	NA	No
19	103	alpha-BHC	ug/L	Available Data <DL	0.6	NONE	NONE	0.0039	0.013		0.013	Yes	No	No	NA	No
19	104	beta-BHC	ug/L	All Data Qualified	0.6	NONE	NONE	0.014	0.046		0.046	No	No	No	NA	No
19	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
19	106	delta-BHC	ug/L	All Data Qualified	0.6	NONE	NONE	NONE	NONE		NONE	No	No	No	NA	No
19	107	Chlordane	ug/L	All Data Qualified	0.6	2.4	0.0043	0.00057	0.00059		0.00059	No	No	No	NA	No
19	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
19	109	4,4'-DDE	ug/L	All Data Qualified	0.6	NONE	NONE	0.00059	0.00059		0.00059	No	No	No	NA	No
19	110	4,4'-DDD	ug/L	All Data Qualified	0.6	NONE	NONE	0.00083	0.00084		0.00084	No	No	No	NA	No
19	111	Dieldrin	ug/L	All Data Qualified	0.6	0.24	0.056	0.00014	0.00014		0.00014	No	No	No	NA	No
19	112	Endosulfan I	ug/L	All Data Qualified	0.6	0.22	0.056	110	240		0.056	No	No	No	NA	No
19	113	Endosulfan II	ug/L	All Data Qualified	0.6	0.22	0.056	110	240		0.056	No	No	No	NA	No
19	114	Endosulfan Sulfate	ug/L	All Data Qualified	0.6	NONE	NONE	110	240		240	No	No	No	NA	No
19	115	Endrin	ug/L	All Data Qualified	0.6	0.086	0.036	0.76	0.81		0.036	No	No	No	NA	No
19	116	Endrin Aldehyde	ug/L	All Data Qualified	0.6	NONE	NONE	0.76	0.81		0.81	No	No	No	NA	No
19	117	Heptachlor	ug/L	All Data Qualified	0.6	0.52	0.0038	0.00021	0.00021		0.00021	No	No	No	NA	No
19	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
19	119	Aroclor-1016	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	120	Aroclor-1221	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	121	Aroclor-1232	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	122	Aroclor-1242	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	123	Aroclor-1248	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	124	Aroclor-1254	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	125	Aroclor-1260	ug/L	All Data Qualified	0.6	NONE	0.014	0.00017	0.00017		0.00017	No	No	No	NA	No
19	126	Toxaphene	ug/L	All Data Qualified	0.6	0.73	0.0002	0.0073	0.00075		0.0002	No	No	No	NA	No
19	127	E. Coli	MPN/100 ml	All Data Qualified	0.6	NA	NA	NA	NA	235	MPN/100 ml	No	No	No	NA	No

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

**THIRD QUARTER 2011  
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<b>Outfall</b>	<b>Constituent</b>	<b>Monitoring</b>	<b>Units</b>	<b>Number of Samples</b>	<b>MEC</b>	<b>CV</b>	<b>Multiplier</b>	<b>Projected Maximum Effluent Concentration (99/99)</b>	<b>Dilution Ratio</b>	<b>Background Concentration</b>	<b>Projected Maximum Receiving Water Concentration</b>	<b>Step 1, Determine Water Quality Objectives</b>	<b>BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection</b>
19	Barium	Annual	mg/L	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1000	BU
19	Biochemical Oxygen Demand (BOD 5 day)	Discharge	mg/L	2	Available Data <DL	0.6	7.4	Available Data < DL	0	0	NA	20	BU
19	Chloride	Discharge	mg/L	2	170	0.6	7.4	1257	0	0	1257	150	BU
19	Fluoride	Annual	mg/L	0	All Data Qualified	0.6	All Data Qualified	All Qualified Data	0	0	NA	1.6	BU