

APPENDIX D

FOURTH QUARTER 2012 RADIOLOGICAL MONITORING DATA

**FOURTH QUARTER 2012
REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309**

Notes:

1. TCDD TEQs for the purpose of determining permit compliance are the sum of the products of the detected dioxin congener concentration multiplied by that congener's toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF). The resulting compliance TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 37 of the NPDES permit.
2. pH was determined with a field instrument and was noted as such. These results were not validated.
3. The NPDES monthly average permit limit for mercury of 0.05 µg/L (Outfall 019) is not achievable by the laboratory; therefore, the laboratory MDL of 0.10 µg/L was used to determine compliance.
4. All of the following abbreviations and/or notes may not occur on every table.

-92.9 +/-200	A negative radiochemical analytical result indicates the count rate of the sample was less than the background condition
\$	reported result or other information was incorrectly reported by the laboratory; result was corrected by the data validator
--	based on validation of the data, a qualifier was not required
-/-	no permit limit established for daily maximum or monthly average
<(value)	analyte not detected at a concentration greater than or equal to the DL, MDL, or RL (see laboratory report for specific detail)
*	result not validated
*1	improper preservation of sample
*2	the ICP/MS ppb check standard was recovered above the control limit; therefore, the constituent detected was qualified as estimated (J)
*3	initial and or continuing calibration recoveries were outside acceptable control limits
*5	blank spike/blank spike duplicate relative percent difference was outside the control limit
*10	value was estimated detect or estimated non detect (J,UJ) due to deficiencies in quantitation of the constituent including constituents reported by the laboratory as Estimated Maximum Possible Concentration (EMPC) values

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*11	no calibration was performed for this compound; result is reported as a tentatively identified compound (TIC)
* II *III	Unusual problems found with the data that have been described in Section II, "sample management", or Section III, "method analysis". The number following the asterisk (*) will indicated the validation report section where a description of the problem can be found.
ANR	analysis not required; e.g., constituent or outfall was not required by the permit to be sampled and analyzed over the reporting period (annual, semi-annual, etc.)
B	laboratory method blank contamination
BA	relative percent difference out of control
BEF	bioaccumulation equivalency factor
BU	analyzed out of holding time
BV	sample received after holding time expired
C	calibration %RSD or %D were noncompliant
C5	Calibration verification %R was outside method control limits
%D	percent difference between the initial and continuing calibration relative response factors
deg F	degrees Fahrenheit
DL	detection limit
DNQ	detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less then the laboratory reporting limit)
E	duplicates show poor agreement
ft/sec	feet per second
H	holding time was exceeded
I	ICP interference check solution results were unsatisfactory
J	estimated value, result lower than the detection limit
J, DX	estimated value, value < lowest standard (MQL), but > than MDL
K	The sample dilution's set-up did not meet the oxygen depletion criteria of at least 2 mg/l. Therefore, the reported result is an estimated value only.
L2	the laboratory control sample %R was below the method control limits
L	laboratory control sample %R was outside control limits
LOD	limit of detection
LQ	LCS/LCSD recovery above method control limits
M1	matrix spike (MS) and/or MS duplicate were above the acceptance limits due to sample matrix interference
M2	the MS and/or MS duplicate were below the acceptance limits due to sample matrix interference
MDA	minimum detectable activity
MDL	method detection limit
MGD	million gallons per day

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MHA*	Due to high level of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
mg/L	milligrams per liter
ml/L/hr	milliliters per liter per hour
MPN/100 ml	most probable number per 100 milliliters
NA	not applicable; no permit limit established for the constituent and/or outfall
ND	analyte value less than the LOD or MDL
NM	not measured or determined
NTU	nephelometric turbidity unit
pCi/L	picocuries per liter
Q	matrix spike recovery outside of control limits
R	as a validation qualifier, results are rejected; the presence or absence of analyte cannot be verified
R	(reason code in parentheses) %R for calibration not within control limits
RL	laboratory reporting limit
RL-1	reporting limit raised due to sample matrix effects
%RSD	percent relative standard deviation
S	surrogate recovery was outside control limits
TEQ	toxic equivalent
T	presumed contamination, as indicated by a detect in the trip blank
TU _c	toxicity units (chronic)
U	result not detected
µg/L	micrograms per liter
UJ	result not detected at the estimated reporting limit
umhos/cm	micromhos per centimeter
WHO TEF	World Health Organization toxic equivalency factor
^	analysis not completed due to hold time exceedence or insufficient sample volume
#	Per ORDER NO. R4-2010-0090 page 23 Footnote 1. The effluent limitations for total suspended solids and settleable solids are not applicable for discharges during wet weather. During wet weather flow, a discharge event is greater than 0.1 inches of rainfall in a 24-hour period. No more than one sample per week need be obtained during extended periods of rainfall or the discharge of collected stormwater. A storm event must be preceded by at least 72 hours of dry weather.
(4.0)3.1/-	Represents (Dry Weather Limit) Wet Weather Limit / Monthly Average Limit.

OUTFALL 009 (WS-13 Drainage)

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NPDES PERMIT CA0001309**

October 1 through December 31, 2012

ANALYTE	UNITS	Permit Limit Daily Max/Monthly Avg	11/18/2012 (Comp)		
			RESULT	MDA	VALIDATION QUALIFIER
RADIOACTIVITY					
Gross Alpha	pCi/L	15/-	0.657 ± 0.28	0.332	J (DNQ)
Gross Beta	pCi/L	50/-	2.47 ± 0.64	0.938	J (DNQ)
Strontium-90	pCi/L	8.0/-	0.066 ± 0.73	1.7	UJ (C)
Total Combined Radium-226 & Radium 228	pCi/L	5.0/-	-0.02 ± 0.50	1.55	U
Tritium	pCi/L	20000/-	-39.8 ± 95	163	U
Potassium-40	pCi/L	-/-	-33.6 ± 34	63.7	U
Uranium, Total	pCi/L	20/-	1.02 ± 0.11	0.022	--
Cesium 137	pCi/L	200/-	1.69 ± 5.2	4.35	U

OUTFALL 019 (Treatment System)

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October 1 through December 31, 2012

ANALYTE	UNITS	Permit Limit Daily Max/Monthly Avg	10/03-04/2012 (Comp)			11/01-02/2012 (Comp)		
			RESULT	MDA	VALIDATION QUALIFIER	RESULT	MDA	VALIDATION QUALIFIER
RADIOACTIVITY								
Gross Alpha	pCi/L	15/-	0.523 ± 0.97	1.85	UJ (C)	0.938 ± 1.1	1.73	UJ (C)
Gross Beta	pCi/L	50/-	2.4 ± 1.5	2.45	U	2.24 ± 1.3	2.01	J (DNQ)
Strontium-90	pCi/L	8.0/-	0.111 ± 0.36	0.8	U	-0.05 ± 0.32	0.779	U
Total Combined Radium-226 & Radium 228	pCi/L	5.0/-	0.62 ± 0.48	1.46	U	0.44 ± 0.49	1.21	U
Tritium	pCi/L	20000/-	-121 ± 110	189	U	35.7 ± 100	173	U
Potassium-40	pCi/L	-/-	-2.53 ± 25	25.4	U	-4.98 ± 17	36.2	U
Uranium, Total	pCi/L	20/-	0.234 ± 0.028	0.021	J (DNQ, L)	0.591 ± 0.066	0.023	J (DNQ)
Cesium 137	pCi/L	200/-	0.533 ± 6.6	2.35	U	0.12 ± 0.77	1.3	U