

APPENDIX D

THIRD QUARTER 2007  
RADIOLOGICAL MONITORING DATA, OUTFALLS 002, 004, AND  
006

**THIRD QUARTER 2007 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 1998 World Health Organization's (WHO) toxic equivalency factor (TEF). The resulting compliance TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 46 of the NPDES permit.
2. For some sample dates, pH was determined with a field instrument to obtain a more representative result and was noted as such. These results were not validated.
3. The NPDES permit limits for mercury of 0.10 µg/L (Outfalls 001, 002, 011, and 018) and 0.13 µg/L (Outfalls 3-10) are not achievable by the laboratory; therefore, the laboratory reporting limit of 0.20 µg/L was used to determine compliance.
4. The following assumptions and rationale were used to report the DMR Quantity or Loading results:

Loading (lbs/day) = Measured Sample Concentration (mg/L) x 8.34 x Outfall flow (MGD)  
Monthly Average Loading (lbs/day) = Sum of Event Mass Discharges within a Month /  
Number of Days of Flow for all Sample Events

Where:

Event Mass Discharge = Measured Sample Concentration for Event (mg/L) x  
8.34 x Total Flow for Sample Event (MGD)

In Compliance with the Permit (Page 44, Section D), for Monthly Average Discharge Values:

- For calculating the monthly average, one-half of the MDL was used for concentration results reported as ND.
  - For calculating the monthly average, the estimated value was used for concentration results reported as DNQ.
  - If all pollutants belonging to the same group are reported as ND or DNQ, the sum of the individual pollutant concentrations were considered zero for calculation of the monthly average.
5. Data presented in the report tables are reported as quantified to the MDL (ND < MDL) and includes estimated detections (DNQ values) to provide low-level information and to give an indication of the sensitivity of the methods used. The laboratory-derived MDLs are designed to be reliable however, the data generation and validation procedures are designed to establish defensibility of quantified data to the RL. Data presented in the tables are accurate and reliable as qualified, but the final laboratory data reports and data validation reports must be used to determine legal defensibility. This does not affect compliance determination, since values below the RL are not used for compliance purposes.

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**Symbols and Abbreviations:**

The following symbols and abbreviations may occur on report tables:

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-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
*4	Extractable Fuel Hydrocarbon (EFH) recovery was above control limit in the blank spike only and relative percent difference for the EFH blank spike/blank spike duplicate pair exceeded the quality control (QC) limit of </-25%
*5	blank spike/blank spike duplicate relative percent difference was outside the control limit
*7	BOD results were estimated due to method derivation
*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
*11	no calibration was performed for this compound; result is reported as a tentatively identified compound (TIC)
*II	Unusual problems found with the data that have been described in Section II, "Sample Management" of the validation reports.
*III	Unusual problems found with the data that have been described in Section III, "Method Analyses" of the validation reports.
ANR	analysis not required; e.g., constituent or outfall was not required by the permit to be sampled and analyzed (annual, semi-annual, etc.)
B	laboratory method blank contamination
C	calibration %RSD or %D were noncompliant
C5	Calibration verification %R was outside method control limits
D	analysis with this flag should not be used because another more technically sound analysis is available
%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

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H	holding time was exceeded
I	ICP interference check solution results were unsatisfactory
J	estimated value
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
lbs/day	pounds per day
L	laboratory control sample %R was outside control limits
LOD	limit of detection
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
M-3	Results exceeded the linear range in the MS and/or MS duplicate and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
MDA	minimum detectable activity
MDL	method detection limit
MGD	million gallons per day
mg/L	milligrams per liter
ml/L	milliliters per liter
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
pg/L	picograms 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	(as a 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 equivalency quotient
T	presumed contamination, as indicated by a detect in the trip blank
TU <sub>c</sub>	toxicity units (chronic)
U	result not detected
ug/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
+	False positive – reported compound was not present. Not applicable.

**OUTFALL 002 (South Slope below R-2 Pond)**

**THIRD QUARTER 2007 REPORTING SUMMARY  
THE BOEING COMPANY  
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NPDES PERMIT CA0001309**

**July 1 through September 30, 2007**

ANALYTE	UNITS	Permit Limit Daily Max/Monthly Avg	9/22/2007		
			RESULT	MDA	VALIDATION QUALIFIER
<b>RADIOACTIVITY</b>					
Gross Alpha	pCi/L	15/-	701 ±170	120	J (H,R)
Gross Beta	pCi/L	50/-	426 ±95	140	J (H)
Strontium-90	pCi/L	8.0/-	2.79 ±0.44	0.46	J (H)
Total Combined Radium-226 & Radium 228	pCi/L	5.0/-	17.01 ± 1.301	0.87	J (H)
Tritium	pCi/L	20000/-	15.4 ±110	190	U
Ac-228 (G)	pCi/L	-/-	48.0 ±11	14	J (H)
Am-241 (G)	pCi/L	-/-	ND < 18	18	UJ (H)
Bi-212 (G)	pCi/L	-/-	47.2 ±30	34	J (H,E)
Bi-214 (G)	pCi/L	-/-	24.1 ±4.5	4.8	J (H,E)
Co-58 (G)	pCi/L	-/-	ND < 2.4	2.4	UJ (H)
Co-60 (G)	pCi/L	-/-	ND < 2.2	2.2	UJ (H)
Cs-134 (G)	pCi/L	-/-	ND < 3.2	3.2	UJ (H)
Cs-137 (G)	pCi/L	-/-	9.06 ±2.3	2.5	J (H,E)
Eu-152 (G)	pCi/L	-/-	ND < 6.0	6.0	UJ (H)
Eu-154 (G)	pCi/L	-/-	ND < 6.7	6.7	UJ (H)
K-40 (G)	pCi/L	-/-	268 ±38	28	J (H,E)
Mn-54 (G)	pCi/L	-/-	ND < 2.1	2.1	UJ (H)
Pb-210 (G)	pCi/L	-/-	ND < 600	600	UJ (H)
Pb-212 (G)	pCi/L	-/-	43.0 ±3.5	3.3	J (H)
Pb-214 (G)	pCi/L	-/-	27.2 ±5.9	5.5	J (H)
Ra-226 (G)	pCi/L	-/-	23.4 ±4.4	4.7	J (H,E)
Th-228 (G)	pCi/L	-/-	ND < 14	14	UJ (H)
Th-230 (G)	pCi/L	-/-	ND < 640	640	UJ (H)
Th-232 (G)	pCi/L	-/-	47.8 ±11	9.7	J (H)
Th-234 (G)	pCi/L	-/-	ND < 2.0	2.0	UJ (H)
Tl-208 (G)	pCi/L	-/-	16.4 ±2.6	2.5	J (H,E)
U-234 (G)	pCi/L	-/-	ND < 550	550	UJ (H)
U-235 (G)	pCi/L	-/-	ND < 11	11	UJ (H)
U-238 (G)	pCi/L	-/-	ND < 340	340	UJ (H)

**OUTFALL 004 (SRE)**

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**July 1 through September 30, 2007**

ANALYTE	UNITS	Permit Limit Daily Max/Monthly Avg	7/5/2007		
			RESULT	MDA	VALIDATION QUALIFIER
<b>RADIOACTIVITY</b>					
Gross Alpha	pCi/L	15/-	0.085 ±1.0	1.74	UJ (R)
Gross Beta	pCi/L	50/-	8.17 ±0.87	1.09	--

**OUTFALL 006 (FSDF-2)**

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NPDES PERMIT CA0001309**

**July 1 through September 30, 2007**

ANALYTE	UNITS	Permit Limit Daily Max/Monthly Avg	9/22/2007		
			RESULT	MDA	VALIDATION QUALIFIER
<b>RADIOACTIVITY</b>					
Gross Beta	pCi/L	50/-	13.0 ± 2.0	2.3	J (H)