

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**MONITORING AND REPORTING PROGRAM NO. CI-8520
FOR
BOEING REALTY CORPORATION, C-1 FACILITY
LONG BEACH, CALIFORNIA
(CLEANUP AND ABATEMENT ORDER 95-048, FILE NO. 95-034)
ORDER NO. R4-2002-0030 (SERIES NO. 8)**

The Discharger shall implement this monitoring and reporting program on the effective date of this Order.

I. GROUNDWATER MONITORING PROGRAM

A. BUILDING 1D

In the Building 1D Area the following two groups of groundwater wells will be included in the sampling program.

Group A: B1D-PT1 through 7; and MW1056 (8 wells total).

Group B: B1D-PM1 through 6 (6 wells total).

Group A wells will be sampled quarterly and Group B wells will be sampled semi-annually. Groundwater well locations are shown in attached Figures 1 and 2.

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The required constituents to be analyzed and the monitoring schedule for each well group are shown in the table below. Baseline sampling will be performed prior to injection.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	ug/l	grab	A Group: Quarterly B Group: Semiannually
Methane, Ethene, Ethane	mg/l	grab	A Group: Quarterly B Group: Semiannually
Volatile Fatty Acids	mg/l	grab	A Group: Quarterly B Group: Semiannually
PCR assay (for Dehalococcoides Ethenogenes)	NA	grab	A Group: 1 st , 3 rd , and 4 th Quarters
Dissolved Metals (Fe/Mn/As) and Sulfide	mg/l	grab	Semiannually
Major Anions (bromide, chloride, sulfate, nitrate, nitrite)	mg/l	grab	A Group: Quarterly B Group: Semiannually
Total Organic Carbon (EPA Method 9060 Modified)	mg/l	grab	A Group: Quarterly B Group: Semiannually
COD	mg/l	grab	A Group: Quarterly B Group: Semiannually
BOD	mg/l	grab	A Group: Quarterly B Group: Semiannually
Groundwater Elevation	Feet, below ground surface (bgs)	In situ	A Group: Quarterly B Group: Semiannually
PH	pH units	grab	A Group: Quarterly B Group: Semiannually
Oxidation-Reduction Potential	Millivolts	grab	A Group: Quarterly B Group: Semiannually
Dissolved Oxygen	mg/l	grab	A Group: Quarterly B Group: Semiannually
Specific Conductance	MS/cm	grab	A Group: Quarterly B Group: Semiannually
Temperature	Deg C	grab	A Group: Quarterly B Group: Semiannually

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B. BUILDING 3

In the Building 3 Area the following three groups of groundwater wells will be included in the sampling program.

Group A: B3-PT1 through 7; and extraction wells (B3-EW1 through 3). (10 wells total)

Group B: B3-PT8 through 10; MW1011, and MW1043. (5 wells total)

Group C: B3-PM1 through 4. (4 wells total)

Group A wells will be sampled biweekly, Group B wells will be sampled monthly, and Group C program wells will be sampled semi-annually. Groundwater well locations are shown in attached Figure 3.

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The required constituents to be analyzed and the monitoring schedule for each well group are shown below. Baseline sampling will be performed prior to injection.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	ug/l	grab	Group A: biweekly Group B: quarterly Group C: semiannually
Methane, Ethene, Ethane	mg/l	grab	Group A: monthly Group B and C: semiannually
Volatile Fatty Acids	mg/l	grab	Group A: monthly Group B and C: semiannually
PCR assay (for Dehalococoides Ethenogenes)	NA	grab	Group A: quarterly Group B and C: semiannually
Dissolved Metals (Fe/Mn/As) and Sulfide	mg/l	grab	Group A: quarterly Group B and C: semiannually
Major Anions (bromide, chloride, sulfate, nitrate, nitrite)	mg/l	grab	Group A and B: monthly Group C: semiannually
Total Organic Carbon (EPA Method 9060 Modified)	mg/l	grab	Group A: quarterly Group B and C: semiannually
COD	mg/l	grab	Group A: quarterly Group B and C: semiannually
BOD	mg/l	grab	Group A: quarterly Group B and C: semiannually
Groundwater Elevation	Feet, below ground surface (bgs)	In situ	Group A: biweekly Group B: quarterly Group C: semiannually
pH	pH units	grab	Group A: biweekly Group B: quarterly Group C: semiannually
Oxidation-Reduction Potential	Millivolts	grab	Group A: biweekly Group B: quarterly Group C: semiannually
Dissolved Oxygen	mg/l	grab	Group A: biweekly Group B: quarterly Group C: semiannually
Specific Conductance	MS/cm	grab	Group A: biweekly Group B: quarterly Group C: semiannually
Temperature	Deg C	grab	Group A: biweekly Group B: quarterly Group C: semiannually

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C. BUILDING 14

In the Building 14 Area the following three groups of groundwater wells will be included in the sampling program.

Group A: IW1 through 5. (Five wells total)

Group B: IW1-1 through 8; IW2-1 through 5; IW3-1 through 5; IW4-1 through 5; and IW5-1 through 5. (28 wells)

Group C: PMW-1 through 6; MW1052 and MW1059. (Eight wells total)

Group A wells will be sampled semi-annually. Group B and C wells will be sampled quarterly for the first four quarters; after the first year of sampling, Group B and C wells will be sampled semi-annually. Groundwater well locations are shown in attached Figures 4, 5, 6, 7, and 8. It is understood that not all 28 Group B wells may be installed, but a minimum of 10 Group B wells must be installed (two Group B wells must be installed for each injection test area).

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The required constituents to be analyzed and the monitoring schedule for each well group are shown below. Baseline sampling will be performed prior to injection.

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	ug/l	Grab	Group A and C: semiannually Group B: quarterly the first year; semiannually thereafter
Methane, Ethene, Ethane	Mg/l	grab	Group A semiannually the first year; annually thereafter Group B: quarterly the first year; semiannually thereafter Group C: semiannually sampling to begin the fourth quarter following injection
Volatile Fatty Acids	mg/l	grab	Group A and B: semiannually the first year; annually thereafter Group C: annually
PCR assay (for Dehalococcoides Ethenogenes)	NA	grab	Group A and C: semiannually the first year; annually thereafter
Dissolved Metals (Fe/Mn/As) and Sulfide	mg/l	grab	Group A and C: semiannually Group B: annually
Major Anions (bromide, chloride, sulfate, nitrate, nitrite)	mg/l	grab	Group A: semiannually the first year; annually thereafter Group B and C: quarterly the first year; semiannually thereafter
Total Organic Carbon (EPA Method 9060 Modified)	mg/l	grab	Group A and C: semiannually Group B: annually
COD	mg/l	grab	Group A and C: semiannually Group B: annually
BOD	mg/l	grab	Group A and C: semiannually Group B: annually
Groundwater Elevation	Feet, below ground surface (bgs)	In situ	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter
PH	pH units	grab	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter
Oxidation-Reduction Potential	Millivolts	grab	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter
Dissolved Oxygen	mg/l	grab	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter
Specific Conductance	MS/cm	grab	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter
Temperature	Deg C	grab	Group A: semiannually Group B and C: quarterly the first year; semiannually thereafter

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D. BUILDING 36

In the Building 36 Area the following two groups of groundwater wells will be included in the sampling program.

Group A: B36-PT1 through 5 and monitor well MW1069. (Six wells total)

Group B: B36-PM1 through 3 [B36-PM3 is also referred to as MW1070]. (Three wells total)

Group A wells will be sampled quarterly and Group B wells will be sampled semi-annually. Groundwater well locations are shown in attached Figures 9 and 10.

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The required constituents to be analyzed and the monitoring schedule for each well group are shown below. Baseline sampling will be performed prior to injection. Baseline sampling will be performed for both Group A and Group B wells. After injection, sampling will be performed for two years (eight quarters).

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Chlorinated Volatile Organic Compounds (EPA Method 8260B)	ug/l	grab	A Group: Quarterly B Group: Semiannually
Methane, Ethene, Ethane	mg/l	grab	A Group: Quarterly B Group: Semiannually
Volatile Fatty Acids	mg/l	grab	A Group: Quarterly B Group: Semiannually
PCR assay (for Dehalococcoides Ethenogenes)	NA	grab	A Group: 1 st , 3 rd , and 4 th Quarters
Dissolved Metals (Fe/Mn/As) and Sulfide	mg/l	grab	Semiannually
Major Anions (bromide, chloride, sulfate, nitrate, nitrite)	mg/l	grab	A Group: Quarterly B Group: Semiannually
Total Organic Carbon (EPA Method 9060 Modified)	mg/l	grab	A Group: Quarterly B Group: Semiannually
COD	mg/l	grab	A Group: Quarterly B Group: Semiannually
BOD	mg/l	grab	A Group: Quarterly B Group: Semiannually
Groundwater Elevation	Feet, below ground surface (bgs)	In situ	A Group: Quarterly B Group: Semiannually
pH	pH units	grab	A Group: Quarterly B Group: Semiannually
Oxidation-Reduction Potential	Millivolts	grab	A Group: Quarterly B Group: Semiannually
Dissolved Oxygen	mg/l	grab	A Group: Quarterly B Group: Semiannually
Specific Conductance	MS/cm	grab	A Group: Quarterly B Group: Semiannually
Temperature	Deg C	grab	A Group: Quarterly B Group: Semiannually

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All groundwater monitoring reports must include, at minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

AMENDMENT INJECTION MONITORING REQUIREMENTS

The reports shall contain the following information regarding injection activities:

1. Depth of injection points;
2. Quantity, type, and concentration of amendment injected and dates injected;
3. Total amount of amendment injected; and
4. Verification of amendment injected.
5. Analytical data for at least two Group B wells from each injection test area (at least ten Group B wells total) in the Building 14 Area.

II. REPORTING REQUIREMENTS

A. BUILDING 1D

Monitoring reports shall be received by the dates in the following schedules. This monitoring and reporting program supercedes previous requirements stated in work plan approval letters. The first monitoring report under this Program is due by January 31, 2004. The Discharger is required to submit quarterly monitoring reports after injection has been implemented according to the following schedule:

Reporting Period	Sampling Month	Report Due Date
October – December	October	January 31,2004
January – March	January	April 29,2004
April – June	April	July 29,2004
July – September	July	October 31,2004

The Discharger is required to submit the following reports pursuant to their respective due dates:

Report	Due Dates
Installation Report	January 31, 2004
Final Pilot Test Report	December 30, 2004

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If there is no discharge or injection, during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.

B. BUILDING 3

Monitoring reports shall be received by the dates in the following schedules. This monitoring and reporting program supercedes previous requirements stated in work plan approval letters. The first monitoring report under this Program is due by October 31, 2003. The Discharger is required to submit quarterly monitoring reports for one year (12 months) after injection has been implemented according to the following schedule:

Reporting Period	Sampling Month	Report Due Date
July – September	July to September	October 31,2003
October – December	October to December	January 31,2004
January – March	January to March	April 29,2004
April – June	April to June	July 29,2004

The Discharger is required to submit the following reports pursuant to their respective due dates:

Report	Due Dates
Installation Report	October 31, 2003
Final Reportq	October 31, 2004

C. BUILDING 14

Monitoring reports shall be received by the dates in the following schedules. This monitoring and reporting program supercedes previous requirements stated in work plan approval letters. The first monitoring report under this Program is due by April 29, 2003. The Discharger is required to submit reports after injection has been implemented according to the following schedule:

Reporting Period	Sampling Month	Report Due Date
January – March 2003	January	April 29, 2003
April – June 2003	April	July 29, 2003
July – September 2003	July	October 31, 2003
October – December 2003	October	January 31, 2004
January – March 2004	January	April 29, 2004
April – June 2004	April	July 29, 2004
July – September 2004	July	October 31, 2004
October – December 2004	October	January 31, 2005
January – June 2005	April	July 29, 2005*
July – December 2005	October	January 31, 2006*

* Denotes monitoring frequency change from quarterly to semiannual

The Discharger is required to submit the following reports pursuant to their respective due dates:

Report	Due Dates
Installation Report	September 30, 2003
Final Report	January 31, 2006

D. BUILDING 36

Monitoring reports shall be received by the dates in the following schedules. This monitoring and reporting program supercedes previous requirements stated in work plan approval letters. The first monitoring report under this Program is due by October 31, 2003. The Discharger is required to submit quarterly monitoring reports after injection has been implemented according to the following schedule:

Reporting Period	Sampling Month	Report Due Date
July – September	July	October 31,2003
October – December	October	January 31,2004
January – March	January	April 29,2004
April – June	April	July 29,2004
July – September	July	October 31,2004
October – December	October	January 31, 2005
January – March	January	April 29, 2005
April – June	April	July 29, 2005

The Discharger is required to submit the following reports pursuant to their respective due dates:

Report	Due Dates
Installation Report	January 31, 2004
Annual Progress Reports	January 31, 2004 January 31, 2005
Final Report	January 31, 2006

III. CERTIFICATION STATEMENT

Each report shall contain the following completed declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the ____ day of _____ at _____.

_____(Signature)

_____(Title)"

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Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations dropped by the Executive Officer if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.