



California Regional Water Quality Control Board

Los Angeles Region



Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Linda S. Adams
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

July 31, 2009

Mr. Robert Scott
Boeing Environmental, Health and Safety
4501 Conant Street
Long Beach, CA 90808

APPROVAL OF THE PHASE 1 BUILDING 10 GROUNDWATER REMEDIATION WORK PLAN AND REVISED MONITORING AND REPORTING PROGRAM CI-9423, INDIVIDUAL WASTE DISCHARGE REQUIREMENTS (WDR) ORDER NO. R4-2008-0033 – FORMER BOEING C-1 FACILITY, LONG BEACH (CLEANUP AND ABATEMENT ORDER 95-048; FILE NO. 95-034; SCP NO. 0399; SITE ID NO. 2044900)

Dear Mr. Scott:

We have received the "Phase 1 Building 10 Groundwater Remediation Workplan, Application of Enhanced In Situ Bioremediation at Lakewood Country Club, Former C-1 Facility, Long Beach, California" (Work Plan) dated June 15, 2009, prepared by Geosyntec. Boeing has completed comprehensive site assessment activities, interim remediation activities, pilot test and special studies that support an overall remediation plan for the groundwater underlying the Building 10 area of the Former C-1 Facility and Lakewood County Club (LCC) (B-10 Area). It is anticipated that B-10 Area groundwater remediation will be implemented in several phases using remediation technologies presented in the B-10 Remediation Plan dated August 25, 2006 and approved by this Regional Board in a letter dated November 13, 2006. This Work Plan presents the plan to implement enhanced in situ bioremediation (EISB) to treat elevated concentrations of trichloroethene (TCE) and its associated biodegradation products in groundwater and saturated soils in the vicinity of the LCC (Phase 1).

An addenda to the Remediation Plan dated August 25, 2006, was submitted to this Regional Board in 2007. The addenda will be superseded by this Work Plan as the remediation approach outlined in the addenda is being revised based on remediation testing and additional monitor well installation completed for B-10 in 2008. Based on the new data collected to date the following remediation approach is proposed: groundwater exceeding the site specific active treatment goal near the water table beneath the LCC will be treated using EISB flow through treatment zones (biobarriers). It is anticipated that groundwater recirculation using a network of extraction and injection wells along the LCC and former C-1 property lines will enhance flow through these biobarriers. Groundwater exceeding the active treatment goal in the deep bellflower aquitard will be proposed to be remediated using groundwater extraction. The groundwater extraction and recirculation system will be outlined in the Phase 2 B-10 groundwater remediation work plan to be submitted under a separate cover.

The Work Plan proposes to install approximately 170 injection points creating a biobarrier to treat groundwater containing target volatile organic compounds beneath the LCC. The Work Plan provides details for conducting the application of emulsified vegetable oil (EVO) and bioaugmentation culture on the LCC property. We have reviewed the Work Plan and approve its implementation.

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

Mr. Robert Scott
Boeing Environmental, Health & Safety

- 2 -

July 31, 2009

On June 5, 2008, an Individual WDR permit (WDR Order No. R4-2008-0033, CI-9423) was granted to Boeing to conduct in-situ chemical oxidation (ISCO) and EISB to remediate the volatile organic compounds (VOCs) groundwater plume at the Building 10 area of the subject site and the monitoring and reporting program (MRP) was modified in November 2008. Based on the results of the additional activities completed in 2008, Boeing requests modification to the MRP CI-9423 to reflect the revised EISB program outlined in the Work Plan referenced above. All proposed injections will be conducted in accordance with the existing Individual WDR permit and revised MRP.

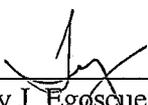
Section 13263 (e) of the California Water Code provides that all Requirements shall be reviewed periodically and, upon such review, may be revised by the Regional Board. Regional Board staff has reviewed all the documents referenced above and information submitted to date for the Building 10 and Building 14 areas and concur with the changes requested for the Building 10 area.

Attached please find Revised MRP CI-9423 dated July 31, 2009, which supersedes the MRP dated November 12, 2008. This revised MRP includes a modified sampling schedule, reporting frequency and figures for both Building 10 and Building 14 areas. The Revised Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this Order. All monitoring reports should be sent to the Regional Board, ATTN: INFORMATION TECHNOLOGY UNIT.

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to **Compliance File No. CI-9423** and **Order No. R4-2008-0033**, which will assure that the reports are directed to the appropriate file and staff. Please do not combine your discharge monitoring reports with other reports. Submit each type of report as a separate document.

If you have any questions please call Ms. Ana Townsend at (213) 576-6738 or e-mail at atowndsend@waterboards.ca.gov.

Sincerely,



Tracy J. Egoscue
Executive Officer

Attachment: Revised Monitoring and Reporting Program CI-9423, dated July 31, 2009

cc: Mark Stuart, California Department of Water Resources, Watermaster, Central Basin
Mitchell Yamada, City of Long Beach
Cheryl Sandel, City Of Long Beach
Steve Nakauchi, City of Long Beach, Department of Health Services
Cheryl Ross, West Basin Municipal Water District
Christopher Ross, Hargis + Associates
Greg Corcoran, GeoSyntec Consultants

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

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

MONITORING AND REPORTING PROGRAM NO. CI-9423
FOR
BOEING CORPORATE REAL ESTATE
BUILDING 10 AND BUILDING 14 AREA, FORMER C-1 FACILITY
LONG BEACH, CALIFORNIA

(CLEANUP AND ABATEMENT ORDER 95-048, FILE NO. 95-034)

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

I. GROUNDWATER MONITORING PROGRAM

It is anticipated that injection activities at the Building 10 area will be initiated in the third quarter (Q3) of 2009, and were initiated at the Building 14 area in the second quarter (Q2) of 2009. The groundwater monitoring programs for enhanced in situ bioremediation (EISB) at the Building 10 and Building 14 areas have been prepared. Details related to each individual program are provided in the sections below.

A. In Situ Chemical Oxidation (ISCO) – Building 10 Area

The field test of ISCO using modified Fenton's reagent was started in the first quarter (Q1) of 2008 and monitored under MRP No. CI-9358 which was integrated into this permit. The following sections contain the sampling programs for the field test program and the full scale application of ISCO, respectively.

i. Field Test Program

The following groundwater monitor wells and temporary groundwater sampling points were included in the sampling program:

Group A: RW_4, RW_7, TS03, TS04, TS05, TS06
Group B: DTS03, DTS04, DTS05, DTS06
Group C: MW2096, MW2099, WCC_5R

Figures 1 and 2 show the location of the Building 10 area. Groundwater monitoring wells located at the Building 10 area are shown in Figure 3. Figure 3 also shows the locations of the field test plots within the Building 10 area and relative to the target contaminant distribution. The field test is being conducted in Plots 2 and 3 based on the results from baseline characterization.

Group A monitoring locations are located within the field test plots and are screened within the Shallow and Middle Bellflower aquitards, spanning the target injection interval. There are six Group A monitoring locations, consisting of one existing well and two temporary sampling screens within each field test plot. Group A monitors will be used to evaluate the consumption and distribution of the modified Fenton's reagent and to assess the effects of ISCO application on VOC concentrations. The temporary screens (TS03, TS04, TS05 and TS06) were installed prior to

baseline sampling and will remain in place throughout the field test injections and follow-up sampling events. Group B monitors are also located within the proposed field test plots; these are temporary groundwater samples (i.e., grab samples) collected from the Deep Bellflower aquitard. Group B monitors are one-time locations where groundwater samples will be collected using direct-push techniques. Group B wells were used to assess the potential for vertical movement of the amended reagents or reaction byproducts. The three Group C locations are monitoring wells located outside of the field test plots that are screened across the Shallow and Middle Bellflower aquitards. Group C wells are not considered to be in the treatment area, and therefore, are not expected to see the effects of amendment addition. Group C wells were and will be used to assess background conditions.

Groundwater samples were collected from the Group A monitoring locations prior to injection (Baseline), following each injection event (Months 1, 2 and 3), and approximately three months after the final injection event (Month 6). Thus, Group A samples were collected on an approximately monthly basis (for a total of three months) during the ISCO treatment field test, and then in a follow-up event (the 'quarterly' or Month 6 event) roughly three months after the third injection event. Group B and Group C monitor locations were sampled prior to injection (Baseline) and approximately three months after the final injection event (Month 6). Collected groundwater samples were analyzed for field parameters (groundwater elevation, pH, dissolved oxygen, oxidation-reduction potential, specific conductance, temperature, and turbidity), chlorinated volatile organic compounds (VOCs), anions, metals and total dissolved solids (TDS). The required constituents to be analyzed and the monitoring schedule for each sample group for the field test are shown below.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Daily Injections	Liters (L)	Measurement	Per injection
Groundwater Elevation	feet below ground surface (ft bgs)	In situ	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
pH	pH units	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Dissolved Oxygen	milligrams per liter (mg/L)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Oxidation-Reduction Potential	millivolts (mV)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Specific Conductance	microSiemens per centimeter (µS/cm)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Temperature	degrees Celsius (°C)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Turbidity	Nephelometric turbidity units (NTU)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Anions (chloride, sulfate, nitrate and nitrite)	milligrams per liter (mg/L)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Metals (arsenic, total & hexavalent chromium, iron, lead and manganese)	micrograms per liter (µg/L)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Total Dissolved Solids	milligrams per liter (mg/L)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly
Volatile Organic Compounds	micrograms per liter (µg/L)	Grab	Group A: Baseline, 3 Monthly and 1 Quarterly Groups B & C: Baseline and 1 Quarterly

ii. Full Scale Program

Based on results of Field Test ISCO Program, Full Scale ISCO injections will not be implemented.

B. Enhanced In Situ Bioremediation (EISB) – Building 10 Area

EISB injection activities in the Building 10 area will not be implemented until the third quarter (Q3) of 2009. The following monitoring plan is based on the anticipated EISB program developed in the second quarter (Q2) of 2009. The following groundwater wells will be included in the EISB sampling program at the Building 10 area:

Group A: MW2111, MW2112, MW2113, MW2114, MW2115, MW2116, MW2117,
WCC_7R
Group B: MW2119
Group C: MW2118, MW2121

Figures 1 and 2 show the location of the Building 10 area. Groundwater monitoring wells located in the Building 10 area are shown in Figure 4. Group A sampling points are monitoring wells located within the treatment area that are screened across the Shallow and Middle Bellflower aquitards. Group A wells will be used to evaluate the consumption and distribution of the electron donor. The Group B sampling point is a monitoring well located outside of the treatment area that is screened across the Shallow and Middle Bellflower aquitards. The Group B well is not considered to be in the treatment area, and therefore, is not expected to see the effects of amendment addition. The Group B well will be used to assess background conditions. Group C sampling points are monitoring wells that are screened across the Deep Bellflower aquitard. Group C wells will be used to assess vertical movement of the donor.

Groundwater samples will be collected once from the Group A, B and C monitoring wells prior to injection (baseline). Upon completion of treatment, groundwater samples will be collected from the Group A monitor wells semi-annually and annually. Collected groundwater samples will be analyzed for field parameters (groundwater elevation, pH, dissolved oxygen, oxidation-reduction potential, specific conductance, temperature, and turbidity), chlorinated VOCs, dissolved hydrocarbon gases (DHGs), total organic carbon (TOC), anions, dissolved metals, total sulfide, and total dissolved solids (TDS). Groundwater samples collected from a subset of Group A monitoring wells will also be analyzed for *Dehalococcoides* (DHC).

The required constituents to be analyzed and the monitoring schedule for each sample group are shown below.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Daily Injections	Liters (L)	Measurement	Per injection
Groundwater Elevation	feet below ground surface (ft bgs)	In situ	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
pH	pH units	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
Dissolved Oxygen	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
Oxidation-Reduction Potential	millivolts (mV)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
Specific Conductance	microSiemens per centimeter (µS/cm)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
Temperature	degrees Celsius (°C)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
Turbidity	Nephelometric turbidity units (NTU)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
VOC	micrograms per liter (µg/L)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline, 2 Semi-Annual and 3 Annual
DHGs	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline and 2 Semi-Annual
TOC	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline and 2 Semi-Annual
Anions (chloride, sulfate and nitrate)	milligrams per liter (mg/L)	Grab	Group A: Baseline and 2 Semi-Annual Group B: Baseline and 2 Semi-Annual Group C: Baseline and 2 Semi-Annual
Metals (arsenic, chromium, iron, lead and manganese)	micrograms per liter (µg/L)	Grab	Group A: Baseline and 2 Semi-Annual Group B: Baseline and 2 Semi-Annual Group C: Baseline and 2 Semi-Annual
Total Sulfide	micrograms per liter (µg/L)	Grab	Group A: Baseline and 2 Semi-Annual
TDS	micrograms per liter (µg/L)	Grab	Group A: Baseline, 4 Semi-Annual and 3 Annual Group B: Baseline, 2 Semi-Annual and 3 Annual Group C: Baseline and 2 Semi-Annual
<i>Dehalococcoides</i> or Vinyl Chloride Reductase (VCR)*	presence or absence	Grab	Group A: Baseline, 2 Semi-Annual and 3 Annual

Notes: * Select Group A wells (MW2111, MW2114, MW2115, MW2117, and WCC_7R) will be analyzed for DHC/VCR

C. Enhanced In Situ Bioremediation (EISB) – Building 14 Area

The following groundwater wells will be included in the EISB sampling program at the Building 14 area:

- Group A: MW2094, MW1059, and a newly constructed Middle Bellflower aquitard monitor well
- Group B: One newly constructed Shallow Bellflower aquitard monitor well; one newly constructed Middle Bellflower aquitard monitor well; and one newly constructed Deep Bellflower aquitard monitor well.
- Group C: MW2001 and MW2092

Figure 5 shows the location of the Building 14 area. Groundwater monitoring wells located at the Building 14 area are shown in Figures 6 and 7. Group A sampling points are monitoring wells located within the treatment area that are screened across the Shallow and Middle Bellflower aquitards. Group A wells will be used to evaluate the consumption and distribution of the electron donor. The Group B sampling points are monitoring wells located downgradient laterally and vertically outside of the treatment area that are screened across the Shallow, Middle, and Deep Bellflower aquitards (no injections to be completed within this zone). Group B Shallow and Middle Bellflower aquitard wells are not considered to be in the treatment area, and therefore, are not expected to see the effects of amendment addition. The Group B Deep Bellflower aquitard well will be used to assess vertical movement of the donor. Group C wells will be used to assess background conditions upgradient of the treatment area. Group C sampling points are monitoring wells that are screened across the Shallow and Middle Bellflower aquitard.

Groundwater samples will be collected once from the Group A, B and C monitoring wells prior to injection (baseline). Upon completion of treatment, groundwater samples will be collected from the Group A, B, and C monitoring wells semi-annually and annually. Collected groundwater samples will be analyzed for field parameters (groundwater elevation, pH, dissolved oxygen, oxidation-reduction potential, specific conductance, temperature, and turbidity), chlorinated VOCs, dissolved hydrocarbon gases (DHGs), total organic carbon (TOC), and volatile fatty acids (VFAs).

The required constituents to be analyzed and the monitoring schedule for each sample group are shown below.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Daily Injections	Liters (L)	Measurement	Per injection
Groundwater Elevation	feet below ground surface (ft bgs)	In situ	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
pH	pH units	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Dissolved Oxygen	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Oxidation-Reduction Potential	millivolts (mV)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Specific Conductance	microSiemens per centimeter (μ S/cm)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Temperature	degrees Celsius ($^{\circ}$ C)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Turbidity	Nephelometric turbidity units (NTU)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
VOC	micrograms per liter (μ g/L)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
DHGs	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline
TOC	milligrams per liter (mg/L)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
Anions (chloride, sulfate, nitrate, and nitrite)	milligrams per liter (mg/L)	Grab	Group A: Baseline Group B: Baseline Group C: Baseline
Dissolved Metals (arsenic, iron, and manganese)	micrograms per liter (μ g/L)	Grab	Group A: Baseline & 2 Annual Group B: Baseline & 2 Annual Group C: Baseline
Total Sulfides	micrograms per liter (μ g/L)	Grab	Group A: Baseline & 2 Annual
Volatile Fatty Acids (VFAs)	micrograms per liter (μ g/L)	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline, 4 Semi-Annual for 2 years Group C: Baseline, 4 Semi-Annual for 2 years
<i>Dehalococcoides</i> or Vinyl Chloride Reductase (VRC)	presence or absence	Grab	Group A: Baseline, 4 Semi-Annual for 2 years Group B: Baseline

II. AMENDMENT INJECTION REPORTING REQUIREMENTS

The ISCO and EISB injection monitoring reports shall contain the following information regarding injection activities:

- a. Depth of injection points;
- b. Quantity of amendment injected and dates injected; and
- c. Total amount of amendment injected.

III. GROUNDWATER MONITORING REPORTING REQUIREMENTS

Groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification and laboratory identification; and
- c. Routine observation of groundwater elevation levels, recorded to 0.01 feet above mean sea level (ft amsl) and groundwater flow direction.

A. Monitoring Reporting Schedule

The Discharger is required to submit an installation report following the end of injections, which will include baseline laboratory data, as well as the ISCO and EISB injection data. Subsequent MRP reports will include data collected during the semi-annual and annual sampling events. The groundwater monitoring wells will be gauged and sampled as outlined in Section I, and results will be reported to the California Regional Water Quality Control Board, Los Angeles Region (RWQCB LA) under the MRP for the Individual Waste Discharge Requirements according to the following schedules for the Building 10 and Building 14 areas:

Building 10 Area:

Reporting Period	Sampling Month(s)	Report Due Date
January – April 2008*	Baseline: After wells installed prior to amendment injection. Post-Injection: 10-to-15 days after each injection event (approximately monthly from start of field test)	May 30, 2008
May – June 2008*	June 2008 (Field test follow-up sampling)	August 29, 2008
January – March 2009 July – December 2009	Baseline, EISB Injections: After wells installed prior to amendment injection.**	May 29, 2009*** March 31, 2010
January – December 2010	April and October 2010**	March 31, 2011
January – December 2011	April and October 2011**	March 30, 2012
January – December 2012	April and October 2012**	March 29, 2013

Notes: * Part of ISCO Field Test program
** Sample event for EISB Activities
*** Report submittal date prior to baseline sampling/injections

Building 14 Area:

Reporting Period	Sampling Month(s)	Report Due Date
December 2008 – September 2009	Baseline: After wells installed prior to amendment injection - May 2009.	July 31, 2009
October – December 2009	Post-Injection/First Semi-annual: October 2009	January 29, 2010
January – June 2010	April 2010	July 30, 2010
July – December 2010	October 2010	January 31, 2011
January – July 2011	April 2011	July 29, 2011

B. Remediation Status Reporting Schedule

The Discharger shall submit reports detailing the results of the remediation. The reports should include a discussion of the use of emulsified vegetable oil and KB-1[®] to treat VOC-contaminated groundwater at the Site. The Discharger is required to submit the following reports pursuant to their respective due dates for each remediation area:

Building 10 Area:

Report	Due Dates
Preliminary ISCO Field Test Report (Baseline, Monthly Post-Injection Monitoring of ISCO Field Test)	May 30, 2008
Final Status Report (ISCO Field Test Injection Activities)	August 29, 2008
Installation Report (Baseline sampling event and injections EISB)	June 30, 2009* March 31, 2010
Annual Report (2009)	May 1, 2009*
Annual Report (Two from 2011 to 2012) [2010 Report will be combined with Installation Report]	March 31, 2011 March 30, 2012
Final Report	March 29, 2013

Notes: * Report submittal date prior to baseline sampling/injections

Building 14 Area:

Report	Due Dates
Baseline Sampling (Pre-installation)	July 31, 2009
Installation and Post Injection	January 29, 2010
Semi-annual Status Reports	July 30, 2010 and July 29, 2011
Annual Status Report	January 31, 2011
Final Report	September 30, 2011

If there is no discharge or injection during the reporting period, the report shall so state. Groundwater monitoring reports must be addressed to the RWQCBLA, Attention: Information Technology Unit.

Whenever wastes associated with the discharge under this Order, are transported to a different disposal site, the following shall be reported in the monitoring report: type and quantity of wastes; name and address of the hauler (or method of transport if other than by hauling); and location of the final point(s) of disposal.

IV. 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)"

V. MONITORING FREQUENCIES

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.

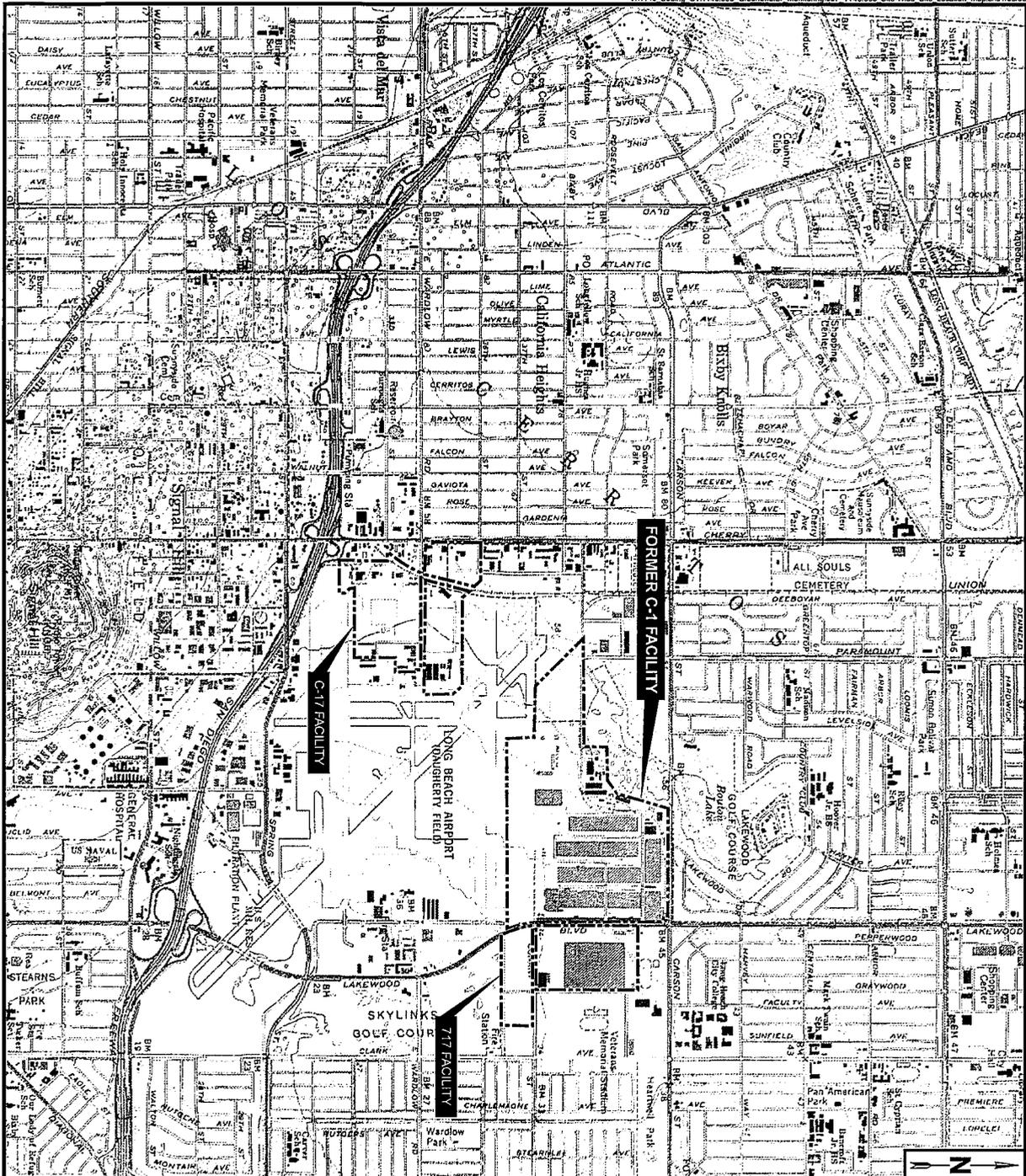
These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:



Executive Officer

Date: July 31, 2009



VICINITY MAP
NOT TO SCALE

REFERENCE:
7.5 MINUTE U.S.S. TOPOGRAPHIC MAPS
DATED 1950, 1960, 1970, 1980, 1985, 1990
PHOTOGRAPHED: 1981

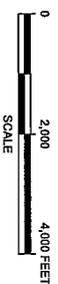
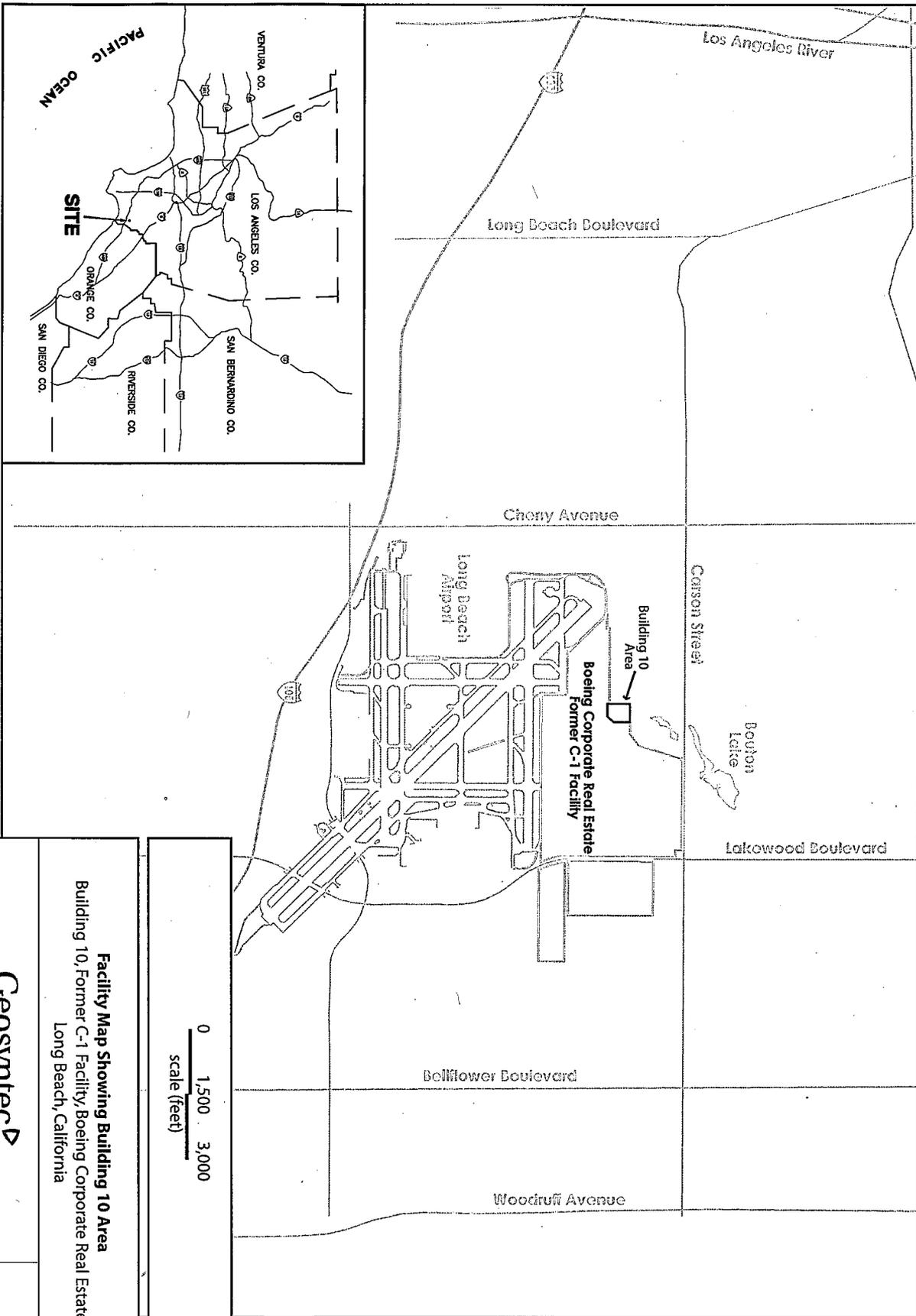


FIGURE 1

SITE LOCATION MAP

BOEING FORMER C-1 FACILITY
LONG BEACH, CALIFORNIA





Facility Map Showing Building 10 Area
 Building 10, Former C-1 Facility, Boeing Corporate Real Estate,
 Long Beach, California

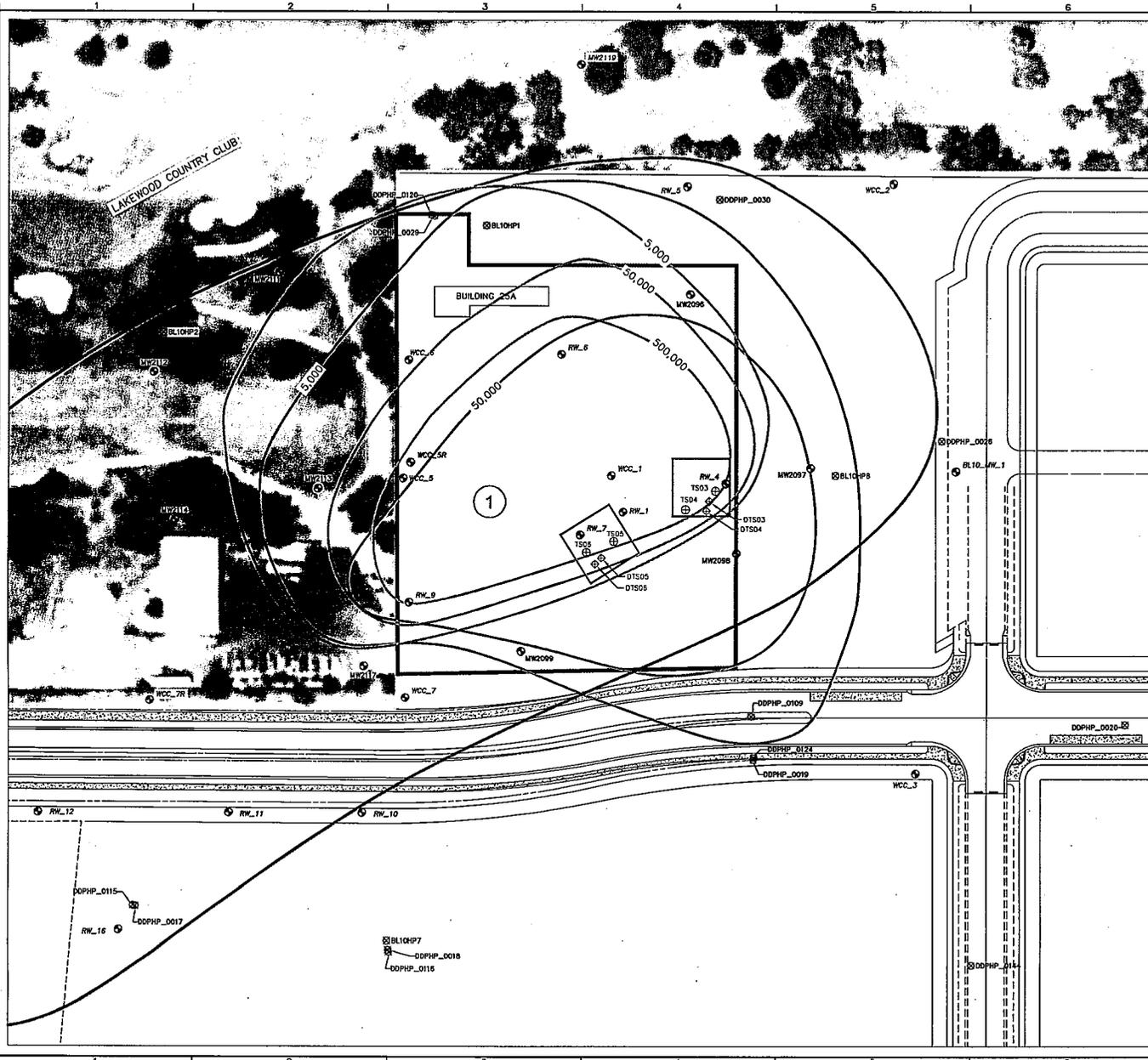
Geosyntec
 consultants

Guelph

21-Nov-2007

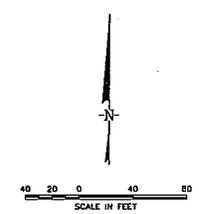
Figure
 2

F:\PRU\Projects\SC0446 Boeing BL10 GW\AutoCAD\WOR Permit Drawings\SC0446 F003.dwg

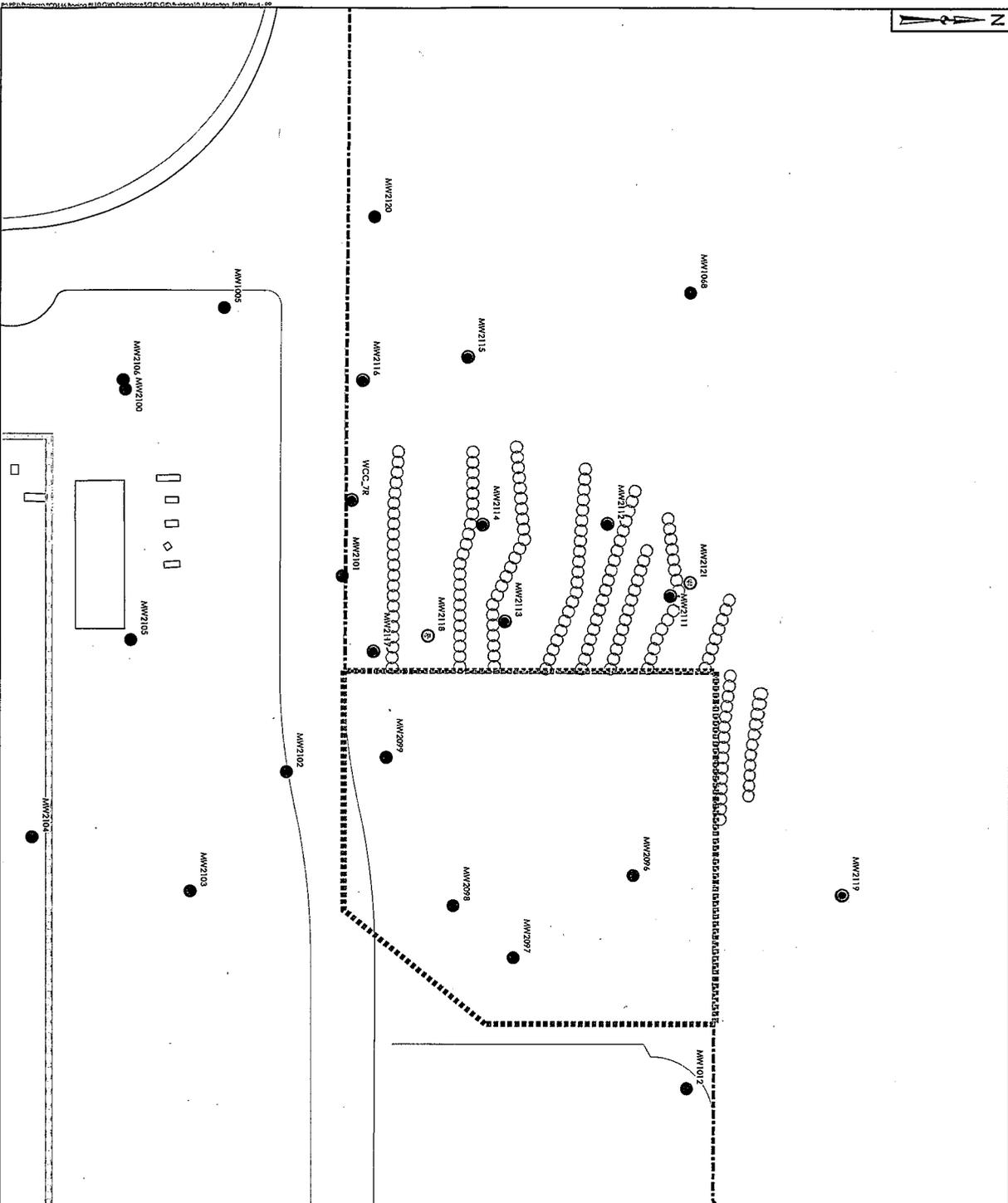


LEGEND

- TREATMENT AREA 1 (107,000 SQ. FT.)
- 50,000 METHYLENE CHLORIDE CONCENTRATIONS (µg/L) IN SHALLOW BELFLOWER AQUITARD GROUNDWATER (OCTOBER 2005)
- 500,000 METHYLENE CHLORIDE CONCENTRATIONS (µg/L) IN MIDDLE BELFLOWER AQUITARD GROUNDWATER (OCTOBER 2005)
- TRICHLOROETHYLENE CONCENTRATIONS IN GROUNDWATER IN EXCESS OF 1 mg/L IN SHALLOW/MIDDLE BELFLOWER AQUITARD
- BL10HP5 HYDROPLUNCH LOCATION
- WCC_2 EXISTING OR PLANNED MONITORING WELL
- ISCO FIELD TEST PLOT 2
- ISCO FIELD TEST PLOT 3
- TS01 TEMPORARY GROUNDWATER SAMPLING SCREEN (LOCATION APPROXIMATE)
- DTS02 HYDROPLUNCH GRAB SAMPLE (DBA) (LOCATION APPROXIMATE)
- WOR MONITORING LOCATIONS FOR FIELD TEST:**
- RW_4 } GROUP A
- DTS02 } GROUP B
- MW2096 } GROUP C



REV	DATE	DESCRIPTION	DRN	APP
		Geosyntec <small>consultants</small>		
		2100 MAIN STREET, SUITE 150 HUNTINGTON BEACH, CALIFORNIA 92648 USA PHONE: 714.969.0800		
TITLE: TREATMENT AREA 1 AND ISCO FIELD TEST PLOTS				
PROJECT: BUILDING 10 GROUNDWATER REMEDIATION PROGRAM				
SITE: BOEING CORPORATE REAL ESTATE, LONG BEACH, CA				
THIS DRAWING MAY NOT BE COVERED FOR PROJECT TENDER OR CONSTRUCTION UNLESS SEALED.		DESIGN BY: MM	DATE: March 2008	
SIGNATURE _____ DATE _____		DRAWN BY: JFH	PROJECT NO.: SC0446-01	
_____		CHECKED BY: CR	FILE: SC0446 F003.dwg	
_____		REVIEWED BY:	FIGURE NO.:	
_____		APPROVED BY:	3	



- Legend**
- Monitoring Wells
 - Group A Monitoring Wells
 - Group B Monitoring Wells
 - Group C Monitoring Wells
 - ⊙ SBA/MBA Direct Push Injection Points
 - ⊙ Building 10 Area
 - ⊙ Enclosure
 - Approximate Site Boundary

Notes:

- MBA - Middle bellflower aquitard
- MRP - monitoring and reporting program
- SBA - Shallow bellflower aquitard



Locations of Monitoring Wells for Building 10 MRP Program
Boeing Former C-1 Facility, Long Beach, California

Geosyntec
consultants

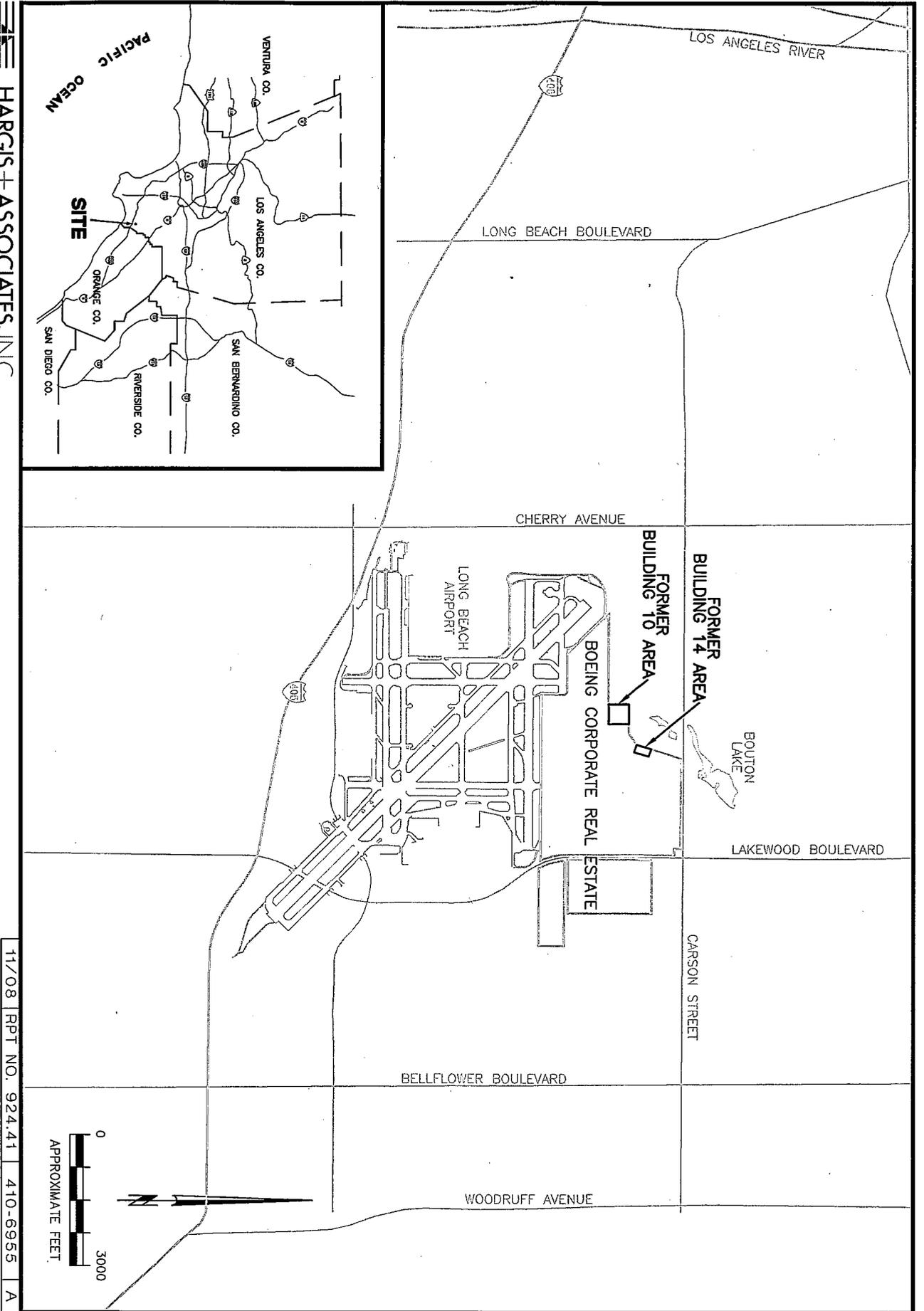
Guelph 26-Jun-2009

Figure 4



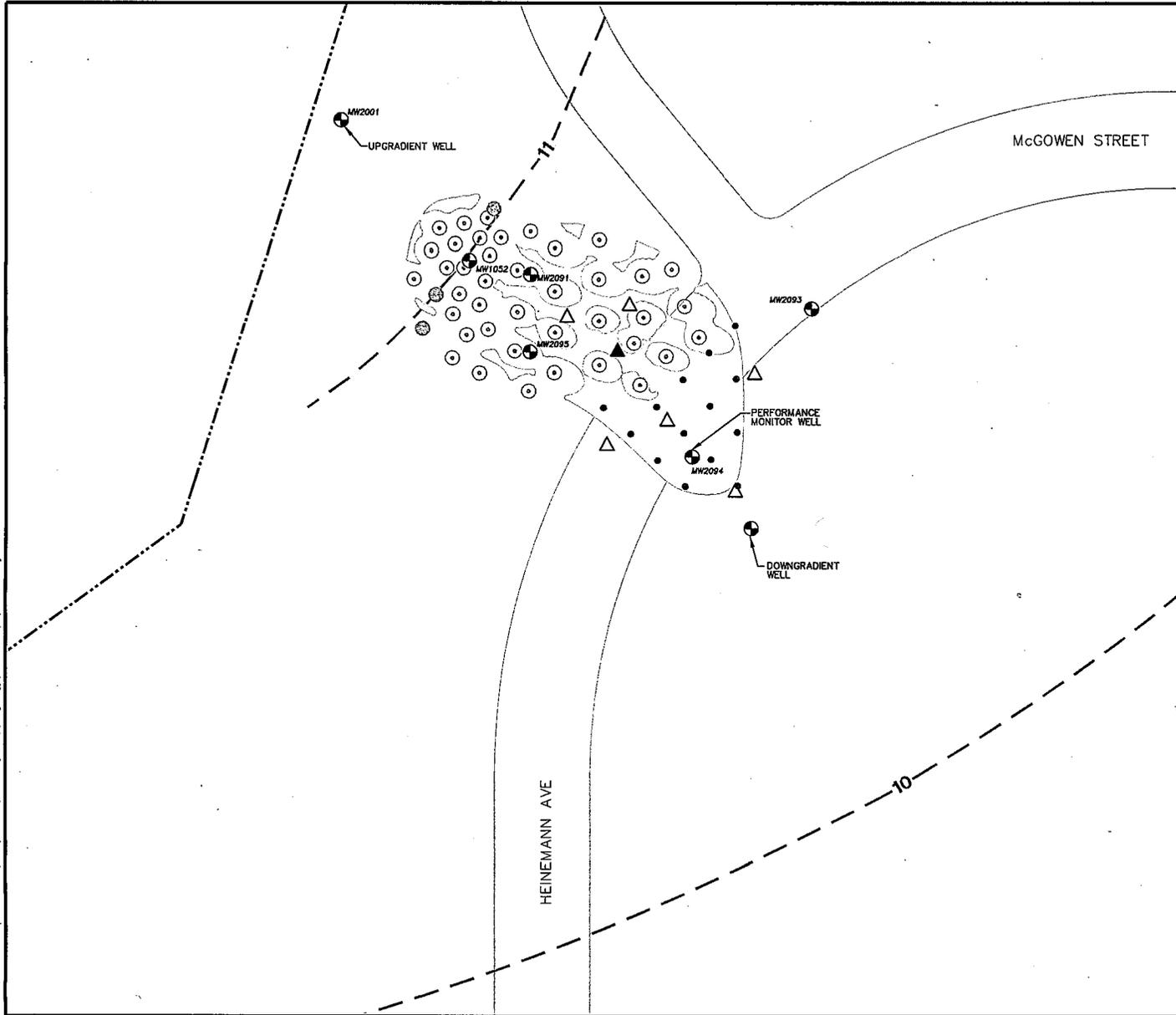
HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

FIGURE 5. BUILDING 10 AND 14 LOCATION



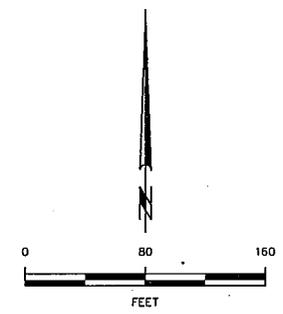
11/08 | RPT NO. 924.41 | 410-6955 | A

Nov 07, 2008 - 2:11pm cde - T:\2008\100-899\1024 Boeing C-1\Hydrogeology\H-A_Borehole\10-6956.dwg



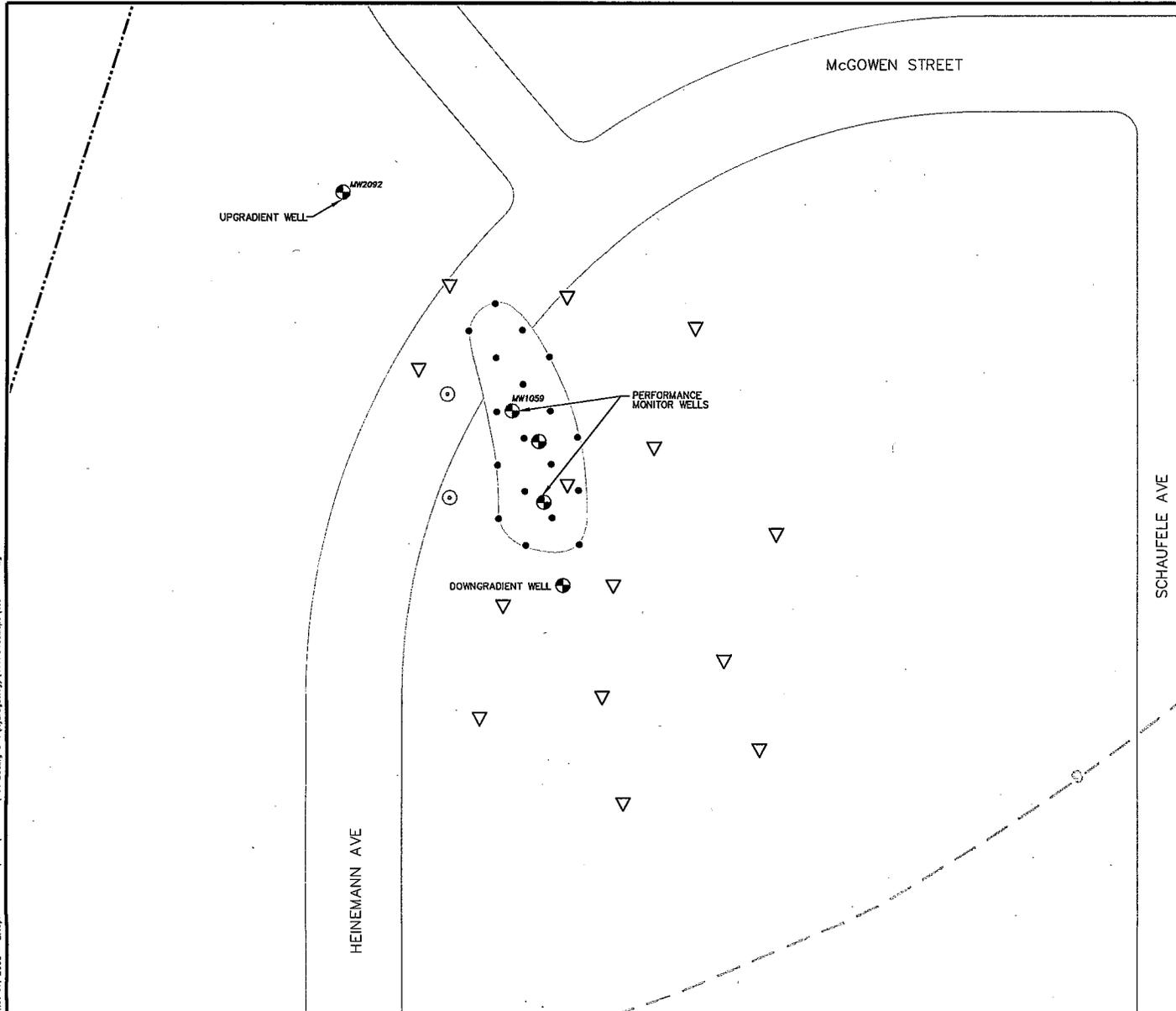
EXPLANATION

- ▲ PROPOSED SOIL GAS PROBE
 - PROPOSED ADDITIONAL INJECTION POINT
 - ⊕ PROPOSED ADDITIONAL SBA MONITOR WELL
 - ⊗ SBA 2003 PILOT INJECTION WELL
 - ⊙ SBA 2005 INJECTION WELL
 - ⊕ EXISTING SBA MONITOR WELL
 - △ SBA HYDROPUNCH LOCATION, AUGUST 2008
 - ▭ CONCEPTUAL AREA WHERE VOCs EXCEED 500 ug/l IN SBA 2008
 - SBA WATER LEVEL CONTOUR FROM AVOCET 2008
 - - - PROPERTY BOUNDARY
- VOCs = VOLATILE ORGANIC COMPOUNDS
 SBA = SHALLOW BELLFLOWER AQUITARD
 ug/l = MICROGRAMS PER LITER



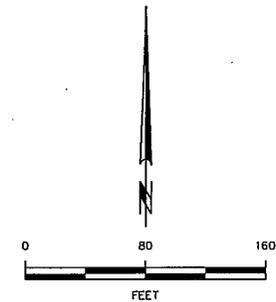
BOEING CORPORATE REAL ESTATE	
LONG BEACH, CALIFORNIA	
BUILDING 14	
SHALLOW BELLFLOWER AQUITARD TREATMENT AREA, PROPOSED ADDITIONAL INJECTION POINTS AND MONITOR WELLS	
HARGIS + ASSOCIATES, INC. Hydrogeology/Engineering	11/08
FIGURE 6	
PREP BY _____	REV BY _____ RPT NO. 924.41 410-6956 A

Nov 07, 2008 - 2:15pm cad - I:\2008\0805-99\021 Boring C-1\Hydrogeology\N+R A Base\kops\110-6957.dwg



EXPLANATION

- PROPOSED ADDITIONAL INJECTION POINT
 - ⊕ PROPOSED ADDITIONAL MBA MONITOR WELL
 - ⊕ PROPOSED ADDITIONAL DBA MONITOR WELL
 - ⊙ MBA 2003 PILOT INJECTION WELL
 - ⊕ EXISTING MBA MONITOR WELL
 - ▽ MBA HYDROPUNCH LOCATION, AUGUST 2008
 - ▽ CONCEPTUAL AREA WHERE VOCs EXCEED 500 ug/l IN MBA 2008
 - MBA WATER LEVEL CONTOUR FROM AVOCET 2008
 - PROPERTY BOUNDARY
- VOCs = VOLATILE ORGANIC COMPOUNDS
MBA = MIDDLE BELLFLOWER AQUITARD
DBA = DEEP BELLFLOWER AQUITARD
ug/L = MICROGRAMS PER LITER



BOEING CORPORATE REAL ESTATE

LONG BEACH, CALIFORNIA

**BUILDING 14
MIDDLE BELLFLOWER AQUITARD
TREATMENT AREA, PROPOSED ADDITIONAL
INJECTION POINTS AND MONITOR WELLS**



HARGIS+ASSOCIATES, INC.
Hydrogeology/Engineering

11/08

FIGURE 7

PREP BY _____ REV BY _____ RPT NO. 924.41 410-6957 A