California Regional Water Quality Control Board
North Coast Region

Monitoring and Reporting Program No. R1-2013-0044
[Rescinding and Replacing Monitoring and Reporting Program No. R1-2010-0102]
WDID No. 1B04028RSON
FOR
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LARRY CARILLO
S.R. LAND COMPANY, INC
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FRANCINE CLAYTON TRUST

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Santa Rosa, California

Sonoma County

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code Section 13267(b) and specifies monitoring and reporting requirements for groundwater and sub-slab vapor, and the submittal of monitoring reports. This MRP also specifies contingency monitoring and reporting requirements for groundwater and requires that these contingency requirements be implemented when analytical results exceed specified threshold levels. The objectives of monitoring conducted under this MRP are to provide the Dischargers and Regional Water Board staff with information concerning contaminant trends in groundwater and sub-slab vapor and to demonstrate compliance with the provisions of General Waste Discharge Requirements Order No. R1-2009-0105. The groundwater and sub-slab vapor sampling and analysis requirements specified below are summarized in Appendix 1 of this MRP.

GROUNDWATER AND SUB-SLAB VAPOR MONITORING

Under the authority of the California Water Code Section 13267, the Dischargers named above are required to comply with the following:

1. The depth to groundwater shall be measured to the nearest 0.01-foot prior to monitoring well purging and sampling. Groundwater elevations shall be reported in tabular form indicating the surveyed elevations of each well reference point, depth to groundwater from the reference point, and the actual groundwater elevation. The data generated from the elevation readings must be referenced to mean sea level.

2. All monitoring wells shall be purged of at least three casing volumes of water, or until dry, prior to sampling. Monitoring wells shall be allowed to recharge to at least 80% of the initial casing volume prior to sampling. All purge water shall be impounded pending analysis for proper disposal. An alternative well-purging protocol may be used upon the written concurrence of the Executive Officer.

3. Chemical analyses required by this MRP shall be conducted by laboratories certified by the California Department of Health Services for those analyses.

4. The protocol to be used for sub-slab vapor sampling shall be consistent with current California regulatory guidelines for sub-slab vapor sampling.[1] Analytical results for sub-slab vapor samples shall be reported in micrograms per cubic meter.

5. Groundwater samples shall be collected from all monitoring wells installed at the Site semi-annually, during the first and third calendar quarters. The samples shall be analyzed for the following volatile organic compounds (VOCs):

   - Benzene;
   - 1,1,1-trichloroethane;
   - 1,1-Dichloroethane;
   - 1,2-Dichloroethane;
   - 1,1-Dichloroethene;
   - cis-1,2-Dichloroethylene;
   - trans-1, 2-Dichloroethylene;
   - Tetrachloroethylene;
   - Trichloroethylene;
   - 1,2-Dichloropropane; and
   - Vinyl chloride (VC)

6. Groundwater monitoring wells MW-UA-01, MW-UA-02, MW-UA-03, MW-UA-04, MW-UA-05, MW-UA-06, MW-UA-07, and PZ-UA-01 shall be sampled semi-annually. The samples shall be tested for the following:

   - VOCs listed in Task # 5 above;
   - Dissolved metals arsenic, iron, and manganese; and
   - Water quality parameters: alkalinity, chemical oxygen demand, total organic carbon, dissolved oxygen, oxidation-reduction potential, pH, and temperature.

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[1] Guidelines for Subsurface vapor sampling include: 1) *Advisory – Active Soil Gas Investigations* (DTSC/LARWQCB/SFRWQCB, 2012); and 2) *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (aka Vapor Intrusion Guidance; DTSC, 2011).

7. Sub-slab vapor samples from probe SVM-01B and any additional vapor probes installed to assess subsurface conditions shall be collected semi-annually and analyzed for the VOCs listed in Task # 5 above.

9. If groundwater analytical results for either well MW-2, MW-3, MW-4, MW-5, or MW-6 exceed pre-injection levels for dissolved iron, manganese, or arsenic by a factor of two (200 %), that monitoring well shall be re-sampled within one month of receipt of the laboratory data. The groundwater sample(s), and subsequent semiannual samples from the well(s) shall be tested for the dissolved metals arsenic, iron, manganese, mercury, and vanadium; and for the water quality parameters alkalinity, chemical oxygen demand, total organic carbon, dissolved oxygen, oxidation-reduction potential, pH, and temperature.

REPORTING

The Dischargers shall submit[2] a groundwater and sub-slab vapor monitoring report semi-annually in paper format to the Regional Water Board according to the following schedule:

Reporting Period	Report Due Date
October through March	April 30
April through September	October 31

Monitoring reports, laboratory analytical reports, and health risk assessment work plans and reports for the site shall also be submitted electronically to the State Water Resources Control Board's Geographic Environmental Information Management System database (GeoTracker) as required by Title 23, Division 3, Chapter 30, Article 2, Sections 3890-3895 of the California Code of Regulations.

Each semi-annual monitoring report shall include the following elements:

A. A groundwater elevation map for each sampling event, showing the locations of monitoring wells, vapor monitoring points, former and current underground tanks, and other significant on-site structures and features.

B. A contaminant isogram map for the most significant pollutant or pollutants detected during the monitoring events.

C. Analytical data tables for permanent groundwater and vapor monitoring points, including both current and historical analytical results.

D. A narrative description of sub-slab vapor sampling procedures, including quality control measures, and an assessment of the vapor sample analytical results. The assessment of sub-slab vapor sample results shall compare the VOC levels detected

[2] For the purposes of this Order, the word "submit" means that the document must be received by the Regional Water Board on or before the associated deadline.

to the screening levels identified in "*Table 2. California Human Health Screening Levels for Indoor Air and Soil Gas*" in the guidance document: *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* (CalEPA Office of Environmental Health Hazard Assessment. January 2005), and in subsequent updates of the CHHSLs. The sub-slab vapor assessment shall include recommendations for additional investigation or mitigation measures to address any concerns about potential vapor intrusion to indoor air.

E. Copies of the well purging and sampling field logs; chain of custody documents showing the time and date of collection and person collecting; and signed laboratory reports including quality control data and explanations of analytical anomalies, if any. Monitoring reports shall also identify the type of instruments that were used for field-measured data, and shall include copies of the pre and post-calibration records or provide other assurance for field data quality. These supporting documents may be included as appendices in the report.

Ordered by _____

Matthias St. John
Executive Officer

June 24, 2013

Sampling and Analysis Plan

MONITORING POINT	REMEDIATION PARAMETER MONITORING [3]	ROUTINE GROUNDWATER MONITORING [4]
UPPER ZONE WELLS		
MW-UA-01	**X**	**X**
MW-UA-02	**X**	**X**
MW-UA-03	**X**	**X**
MW-UA-04	**X**	**X**
MW-UA-05	**X**	**X**
MW-UA-06	**X**	**X**
MW-UA_07	**X**	**X**
PZ-UA-01	**X**	**X**
MW-2		**X**
MW-3		**X**
MW-4		**X**
MW-5		**X**
MW-6		**X**
LOWER ZONE WELLS		
MW-LA-01		**X**
MW-LA-02		**X**
MW-LA-03		**X**
MW-LA-04		**X**
MW-LA-06		**X**
PZ-LA-01		**X**
SUB-SLAB VAPOR WELL		
SVM-01B (4)		**X**

[3] **Remediation Parameter Monitoring** for groundwater shall include a) Dissolved metals: arsenic, iron, and manganese; and b) Water quality parameters: alkalinity, chemical oxygen demand, total organic carbon, dissolved oxygen, oxidation-reduction potential, pH, and temperature.

[4] **Routine Monitoring for groundwater and sub-slab vapor** shall include following volatile organic compounds: Benzene, 1,1,1-trichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethylene, trans-1, 2-Dichloroethylene, Tetrachloroethylene, Trichloroethylene, 1,2-Dichloropropane, and Vinyl chloride.