California Regional Water Quality Control Board
North Coast Region

Monitoring and Reporting Program No. R1-2016-0007
(Rescinding & Replacing Monitoring and Reporting Program No. R1-2014-0027)

FOR

HEWLETT PACKARD COMPANY

For

HEWLETT PACKARD VALLEY SITE
1201 Piner Road
Santa Rosa, California

Case No. 1NSO039
WDID No. 1B86006NSON

Sonoma County

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code Section 13267(b) to the Discharger and requires semi-annual monitoring of groundwater and soil vapor, and the submittal of semi-annual monitoring reports. The objectives of monitoring conducted under this MRP are to provide the Discharger and Regional Water Board staff with information concerning the effectiveness of the treatment method, the protection of human health and the environment, and groundwater quality; and to demonstrate compliance with the provisions of General Waste Discharge Requirements Order No. R1-2009-0105 (WDR). The groundwater and soil vapor monitoring requirements specified below are also summarized in Appendix 1 of this MRP.

This MRP rescinds and replaces Monitoring and Reporting Program No. R1-2014-0027.

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

GROUNDWATER AND SOIL VAPOR MONITORING

General Requirements

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 approval of the Executive Officer.

3. The procedures used for soil vapor and indoor air sampling shall be consistent with current and subsequent revisions of sampling guidance for active soil gas investigations issued by the California Department of Toxic Substances Control. Vapor samples shall be collected from vapor extraction well VE-1 in a manner consistent with the April 1, 2010 "Revised Soil Vapor Extraction System Operations Plan" submitted for the Site. Vapor sampling procedures for vapor probes SV-A1 and SV-A2 shall include leak detection testing and the use of a tracer gas and containment shroud during the sample collection. The presence and concentration of the tracer gas inside the containment shroud shall be confirmed by laboratory analysis or field monitoring. Analytical results for volatile organic compounds (VOCs) in vapor samples shall be reported in micrograms per cubic meter.

4. Chemical analyses required by this MRP shall be conducted by laboratories certified by the state of California for those analyses.

5. Groundwater sample analyses for VOCs shall include the compounds identified in the "Volatile Organic Compounds of Potential of Concern" table, which is incorporated as Appendix 2 of this MRP.

6. Vapor sample analyses shall include the compounds identified in the "Volatile Organic Compound List for Vapor Analysis," which is incorporated as Appendix 3 of this MRP.

Monitoring Requirements

7. Treatment zone wells A and B shall be sampled semi-annually. The samples shall be analyzed for total organic carbon (TOC) and field tested for dissolved oxygen, electrical conductivity, ferrous iron, oxidation-reduction potential, pH, and temperature.

8. Groundwater monitoring wells 66U, 67U, and treatment zone wells A and B shall be sampled semi-annually. The samples shall be analyzed for VOCs, ethane, ethene, methane, and TOC; and for the dissolved metals arsenic, iron, manganese, mercury, and vanadium. The samples shall also be field tested for dissolved oxygen, electrical conductivity, ferrous iron, oxidation-reduction potential, pH, and temperature.

9. Vapor samples from vapor extraction well VE-1 and from monitoring probes SV-A1 and SV-A2 shall be collected semi-annually. The vapor samples shall be analyzed for VOCs.

CONTINGENCY MONITORING AND REPORTING

The following contingency groundwater monitoring and reporting requirements shall be implemented in response to the conditions identified below:

10. If the analytical result for any dissolved metal in either of the down-gradient wells 66U and 67U exceeds the 95% Upper Confidence Limit for that metal based on the previous samples from that well, then Property Boundary Wells 5U, 8U, 10U, and 61U shall be sampled semi-annually and analyzed for the dissolved metals arsenic, iron, manganese, mercury, and vanadium.

11. If the analytical result for TOC in either of the down-gradient wells 66U and 67U exceeds the 95% Upper Confidence Limit for TOC based on the previous samples from that well, then Property Boundary Wells 5U, 8U, 10U, and 61U shall be sampled semi-annually and analyzed for TOC.

REPORTING

All reports shall be submitted in electronic format to the State Water Resources Control Board's Geographic Environmental Information Management System database (GeoTracker) as specified in Title 23, Division 3, Chapter 30, Article 2, Sections 3890-3895 of the California Code of Regulations. A monitoring report for groundwater and soil vapor sampling shall be submitted annually for monitoring conducted during each calendar year. In addition, remedial status reports shall be submitted semi-annually. The reports shall be submitted according to the following schedule:

Report	Reporting Period	Report Due Date
Annual Monitoring Report	January through December	August 15
First Remedial Status Report	January through June	August 15
Second Remedial Status Report	July through December	February 15

All other reports, workplans, and laboratory analytical data for the site shall also be submitted in electronic format to GeoTracker. Laboratory analytical reports shall be submitted to GeoTracker in electronic data format within thirty days of receipt.

Each annual monitoring report shall include the following elements:

A. Groundwater elevation maps for each monitored water-bearing zone showing groundwater elevations relative to the locations of monitoring wells, vapor monitoring points, former and current underground tanks, and other significant features.

B. Analytical data tables summarizing the current and historical analytical results for all permanent groundwater and vapor monitoring points.

C. Copies of the following: well purging and sampling field logs; chain of custody documentation 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 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.

D. A discussion of the sub-surface vapor analytical results and the assessment of potential vapor intrusion to indoor air, including recommendations for additional investigation or mitigation measures to address any concerns about indoor air quality.

Matthias St.John 2016.01.27 18:13:40 -08'00'

Ordered by _____
Water Boards

Matthias St. John
Executive Officer

January 27, 2016

APPENDIX 1

WDR Compliance Sampling and Analysis Plan

Sampling Point Id	Monitoring Objective	Post-Injection Monitoring [1]	Contingency Monitoring [2]
Well A	Treatment Zone A	X [1]	X [2]
Well B	Treatment Zone B	X [1]	X [2]
66U	On-Site Down-gradient	X [1]	X [2]
67U	On-Site Down-Gradient	X [1]	X [2]
5U	Property Boundary		X [2]
8U	Property Boundary		X [2]
10U	Property Boundary		X [2]
61U	Property Boundary		X [2]
VE-1	Sub-Slab Vapor	X [1]	
SV-A1	Soil Vapor	X [1]	
SV-A2	Soil Vapor	X [1]	

(1) **Post-injection Monitoring:**

A) Post injection monitoring for groundwater shall be conducted semi-annually and shall include the following analyses: i) the compounds identified in the "Volatile Organic Compounds of Potential of Concern" table, which is incorporated as Appendix 2 of this MRP (VOCs); ii) the dissolved gases methane, ethane, and ethene; iii) the dissolved metals arsenic, iron, manganese, mercury, and vanadium; and iii) Water quality parameters: total organic carbon, dissolved oxygen, ferrous iron, oxidation-reduction potential, pH, electrical conductivity, and temperature.

B) Post injection monitoring for vapor sampling points includes laboratory analyses for VOCs.

(2) **Contingency Monitoring**

Contingency monitoring for groundwater shall be implemented if the analytical results for either down-gradient well 66U or 67U exceed the 95% Upper Confidence Limit for any dissolved metal or total organic carbon based on the previous sampling data, and shall include the following: a) VOCs; b) the dissolved metals: arsenic, iron, manganese, mercury, and vanadium; and c) water quality parameters: total organic carbon, dissolved oxygen, oxidation-reduction potential, pH, electrical conductivity, and temperature.

APPENDIX 2

Hewlett Packard Valley Site Volatile Organic Compounds of Potential Concern

	Compound Name	CAS No.
1	1,1,1,2-Tetrachloroethane	630-20-6
2	1,1,1-Trichloroethane	71-55-6
3	1,1,2,2-Tetrachloroethane	79-34-5
4	1,1,2-Trichloroethane	79-00-5
5	1,1-Dichloroethane	75-34-3
6	1,1-Dichloroethene	75-35-4
7	1,2,3-Trichlorobenzene	87-61-6
8	1,2,3-Trichloropropane	96-18-4
9	1,2,4-Trichlorobenzene	120-82-1
10	1,2,4-Trimethylbenzene	95-63-6
11	1,2-Dibromo-3-chloropropane	96-12-8
12	1,2-Dibromoethane	106-93-4
13	1,2-Dichlorobenzene	95-50-1
14	1,2-Dichloroethane	107-06-2
15	1,2-Dichloropropane	78-87-5
16	1,3,5-Trimethylbenzene	108-67-8
17	1,3-Dichlorobenzene	541-73-1
18	1,4-Dichlorobenzene	106-46-7
19	2-Butanone (MEK)	78-93-3
20	2-Hexanone	591-78-6
21	4-Isopropultoluene	99-87-6
22	4-Methyl-2-pentanone (MIBK)	108-10-1
23	Acetone	67-64-1
24	Benzene	71-43-2
25	Bromobenzene	108-86-1
26	Bromochloromethane	74-97-5
27	Bromoform	75-25-2
28	Bromomethane	74-83-9
29	Butylbenzene-n	104-51-8
30	Carbon disulfide	75-15-0
31	Carbon tetrachloride	56-23-5
32	Chlorobenzene	108-90-7
33	Chlorodibromomethane	124-48-1
34	Chloroethane	75-00-3
35	Chloroform	67-66-3
36	Chloromethane	74-87-3
37	cis-1,2-Dichloroethene	156-59-2
38	cis-1,3-Dichloropropene	10061-01-5
39	Dibromomethane	74-95-3
40	Dichlorodifluoromethane (Freon 12)	75-71-8
41	Ethylbenzene	100-41-4
42	Hexachlorobutadiene	87-68-3
43	Isopropylbenzene (cumene)	98-82-8
44	Methyl tert-butyl ether	1634-04-4
45	Methylene chloride	75-09-2
46	Naphthalene	91-20-3
47	Propylbenzene-N	103-65-1
48	Styrene	100-42-5
49	Tetrachloroethene	127-18-4
50	Toluene	108-88-3
51	trans-1,2-Dichloroethene	156-60-5
52	trans-1,3-Dichloropropene	10061-02-6
53	Trichloroethene	79-01-6
54	Trichlorofluoromethane (Freon 11)	75-69-4
55	Trichlorotrifluoroethane (Freon 113)	76-13-1
56	Vinyl acetate	108-05-4
57	Vinyl chloride	75-01-4
58	Xylenes (m-,p- and o- isomers)	108-38-3

APPENDIX 3

Volatile Organic Compound List for Vapor Analysis

	Compound Name	CAS No.
1	1,1,1-Trichloroethane	71-55-6
2	1,1,2,2-Tetrachloroethane	79-34-5
3	1,1,2-Trichloroethane	79-00-5
4	1,1-Dichloroethane	75-34-3
5	1,1-Dichloroethene	75-35-4
6	1,2,4-Trichlorobenzene	120-82-1
7	1,2-Dibromoethane	106-93-4
8	1,2-Dichloroethane	107-06-2
9	1,3-Dichlorobenzene	541-73-1
10	1,4-Dichlorobenzene	106-46-7
11	Benzene	71-43-2
12	Carbon tetrachloride	56-23-5
13	Chlorodibromomethane	124-48-1
14	Chloroethane	75-00-3
15	Chloroform	67-66-3
16	Chloromethane	74-87-3
17	cis-1,2-Dichloroethene	156-59-2
18	cis-1,3-Dichloropropene	10061-01-5
19	Ethylbenzene	100-41-4
20	Hexachlorobutadiene	87-68-3
21	Methylene chloride	75-09-2
22	Methyl tert-butyl ether	1634-04-4
23	Tetrachloroethene	127-18-4
24	trans-1,2-Dichloroethene	156-60-5
25	Trichloroethene	79-01-6
26	Trichlorotrifluoroethane (Freon 113)	76-13-1
27	Vinyl chloride	75-01-4