

June 3, 2025

Attn: Mr. Bracken Richardson SummerHill Apartment Communities 777 South California Avenue Palo Alto, California 94304

## And

Mr. Chris Maurer Washington Department of Ecology 300 Desmond Drive Olympia, Washington 98504

Re: Remedial Injection Work Plan Highland Park 14125 Northeast 20th Street Bellevue, King County, Washington 98007 Terracon Project No. 81257212 Cleanup Site ID: 1790 Facility/Site ID: 44352734 VCP Project No.: NW3355

Dear Mr. Richardson and Mr. Maurer:

Terracon Consultants, Inc. (Terracon) is pleased to submit the Remedial Injection Work Plan for the Highland Park Property. As a condition of the UIC permit approval, this Work Plan is being submitted to the Washington State Department of Ecology (Ecology) for review and to seek concurrence for the proposed remedial design. The proposed scope of services is intended to degrade the concentrations of contaminants of concern through In-Situ Accelerated Biodegradation with the use of GeoForm® and Emulsified Lecithin Substrate® solution injections.

# 1.0 PROJECT INFORMATION

The Highland Park property is located at 14045, 14115, 14121 & 14125 Northeast 20th Street in Bellevue, Washington, and is comprised of three tax parcels encompassing approximately 4.3 acres of land (King County Tax Parcel Nos. 272505-9253, -9301, & -9303) formerly developed with the Highland Park Retail Center, including the Northwest Cleaners tenant. The former retail buildings were demolished in September 2022 as a



part of property redevelopment. The property currently has remanent concrete pads in the areas of former retail buildings and associated asphalt parking lot, drive lanes, and landscaping. A Site Diagram is included as Exhibit 1.

Terracon has been engaged with this project for the client since 2019, and has completed numerous subsurface investigations, regulatory interactions, reports, and various remedial actions, in general accordance with our previously approved work. Based on the investigations conducted at the Site, PCE, trichloroethene (TCE), cis-1,2-dicholorethene (cDCE), trans-1,2-dicholorethene (tDCE), and vinyl chloride (VC) have been identified in soil and/or groundwater in the southern portion of the Site at concentrations above the Washington State Model Toxics Control Act (MTCA) Method A and/or Method B Cleanup Levels (CULs) at and within the immediate vicinity of the former drycleaner tenant space.

Between September 29, and October 17, 2022, Terracon oversaw the completion of a remedial excavation of PCE-impacted soil in general accordance with Terracon's Work Plan, dated March 9, 2022, and Terracon's *Soil Management Plan*, dated July 8, 2022. Following the remedial excavation, Terracon prepared an Interim Remedial Action Report, dated April 25, 2023, which was provided to the Washington State Department of Ecology (Ecology). Since the remedial action activities, property redevelopment has been delayed and the site has since remained the same with the partially backfilled excavation, remanent concrete pads in the areas of former retail buildings, and associated asphalt parking lot, drive lanes, and landscaping.

Since groundwater sampling had not been conducted since August 2022 and that the source area has been removed following the remedial excavation, in June 2024 Terracon installed four replacement groundwater monitoring wells (MW10 through MW13) in select areas of the property to demonstrate that on-property groundwater impacts have been remediated. The locations of the replacement wells were positioned in areas to assess groundwater conditions up- and down-gradient of the remedial excavation, as feasible.

Since the installation of the four replacement groundwater monitoring wells in June 2024, Terracon has completed three quarterly groundwater monitoring events. Currently, chlorinated volatile organic compounds (cVOC) concentrations in all on-site groundwater monitoring wells are at or below MTCA CULs, with the exception of VC in replacement monitoring well MW12 at a concentration of 0.35 micrograms per liter ( $\mu$ g/L). A summary of the groundwater analytical results included in Table 1, attached. In addition, VC has been detected in MW11 at concentrations just below the MTCA CUL. Based on the findings from the recent groundwater monitoring events, Terracon concluded that the replacement monitoring wells, in locations not previously sampled and concentrations of cVOCs are likely equilibrating to the remedial action activities.



Therefore, to evaluate potential remedial products for in-situ treatment at the site, Terracon completed a remedial design characterization, which included the installation of a remediation injection well network and two replacement groundwater monitoring wells. The remedial injection wells IP1 through IP12 were installed at and proximal to monitoring wells MW11 and MW12, in the immediate down-gradient direction of the remedial excavation. The approximate locations of existing groundwater monitoring wells and remedial injection wells are depicted on Exhibit 1, attached.

Prior to recommencing property redevelopment and as part of the pathway towards regulatory closure, Terracon has prepared this Work Plan to conduct remedial injections at the site. A remedial product will be injected through the newly installed injection well network. Details of the proposed cleanup actions are provided in the following sections.

# 2.0 WORK PLAN

Terracon proposes to perform remedial injections within the existing site boundaries to degrade residual cVOCs concentrations. An Underground Injection Control (UIC) permit application will be submitted to Ecology prior to performing the remedial injections. This Work Plan is being submitted to Ecology for review and approval as part of the UIC permit application requirements.

The injections will be conducted using injection wells IP1 through IP12 located crossand down-gradient of the remedial excavation in the vicinity of monitoring wells MW11 and MW12. Injections will be within an estimated vertical treatment interval between 8 and 18 feet below ground surface (bgs), which is the screened interval of the injection wells. Depth to groundwater within the targeted treatment area ranges from 8 feet to 11 feet bgs. The lithology within the targeted treatment area and vertical interval generally consists of silt and sand.

Terracon proposes the use of Evonik's Biogeochemical Reagents GeoForm® and Emulsified Lecithin Substrate (ELS®) amendment to remediate dissolved phase cVOCs at the site. GeoForm® Soluble Mix is a blend of sulfate and ferrous iron that when combined with ELS® organic carbon products generates reactive minerals in-situ. GeoForm® provides a source of sulfate, iron, electron donors, pH buffers and nutrients to promote mechanisms for dehalogenation through enhanced anaerobic bioremediation, abiotic degradation and the formation of reactive minerals. Terracon independently developed, and then worked with Evonik to concur on, the injectate, injection quantities, and injection spacing intervals for this ISAB application.

A total of 2,450 pounds of GeoForm® Soluble Mix combined with 920 pounds of ELS® Liquid Concentrate is proposed to be injected into the targeted treatment area. GeoForm® will be mixed with clean water prior to injection. The GeoForm® solution will



be evenly divided into 12 batches, each of which will be injected into each of the 12 injection wells (IP1 through IP12) installed in the vicinity of monitoring wells MW11 and MW12. Injections will be completed within the 8 to 18 feet bgs screened intervals of the injection wells.

In addition, a *Dehalococcoides sp* (DHC) inoculant will be injected as a form of bioaugmentation for cVOCs breakdown. DHC are microorganisms that have been demonstrated to degrade chlorinated ethenes to non-toxic end products (ethene). DHC are also capable of degrading other chlorinated organics such as chlorinated ethanes. A total of 36 liters of DHC inoculant, three liters per injection well, will be injected at the same time as the GeoForm® solution is injected.

Terracon will monitor and record depth to water, dissolved oxygen (DO), oxidationreduction potential (ORP), conductivity, pH, and temperature in the target wells next to their respective injection locations to assess for changes to those parameters during the injections.

## Remedial Application Performance Monitoring

Following the remedial application, Terracon plans to complete performance groundwater monitoring to collect performance metrics that will be used to evaluate the remedial application within the aqueous phase.

Post-injection monitoring events will be conducted approximately one month and six months after completion of the in-situ remedial injection application. The performance monitoring events will include collecting groundwater samples from the eight groundwater monitoring wells MW-1R, MW6R, and MW-8 through MW-13. Prior to sampling, all eight groundwater monitoring wells will be gauged to determine the static groundwater elevations. Groundwater samples will be collected using tubing and a peristaltic pump utilizing low-flow sampling techniques.

Each sample container will be labeled with the project number, date, time, monitoring well number and sample number. The groundwater samples will be collected in laboratory-provided sample containers, placed in an ice-packed cooler, and shipped to the laboratory under chain-of-custody control. Investigation derived waste generated during monitoring well sampling will be stored on-Property within the existing purge water drums.

The water quality meter will be calibrated in accordance with the manufacturer's specification prior to use. The groundwater parameters measured during purging, flow rates, and instrument calibrations will be documented in the field by the Terracon field representative.



The groundwater samples will be analyzed for the following analytical suites and associated laboratory methodologies:

Groundwater Performance Sampling Analyses Maximum No. of Sample Type Analysis Method Samples Groundwater (Two Monitoring Events) cVOCs Groundwater 16 EPA Method 8260 DO/ORP/pH Groundwater 24 Field measurement Microbial Assay Groundwater 4 Varies Groundwater 8 **Geochemical Parameters** Varies

The following performance metrics will be used to evaluate the remedial application:

*Table Footnote*: DO: Dissolved Oxygen; ORP: Oxygen Reduction Potential; Microbial Assay: Dechlorinating Bacteria; and Geochemical Parameters: major cations, sulfate, nitrate, iron, ferrous iron, manganese, chlorine alkalinity, and total organic carbon; cVOCs: Chlorinated Volatile Organic Compounds; EPA: Environmental Protection Agency.

# 3.0 CLOSING

This Work Plan is being submitted to Ecology as part of the UIC permit application requirements and Terracon respectfully requests Ecology's approval of the remedial injections detailed herein. Following approval of this Work Plan, Terracon will submit the UIC permit application for Ecology's approval prior to performing the remedial injections.

If you have any questions or comments pertaining to the material presented herein, please contact the undersigned.

Sincerely, Terracon Consultants, Inc.

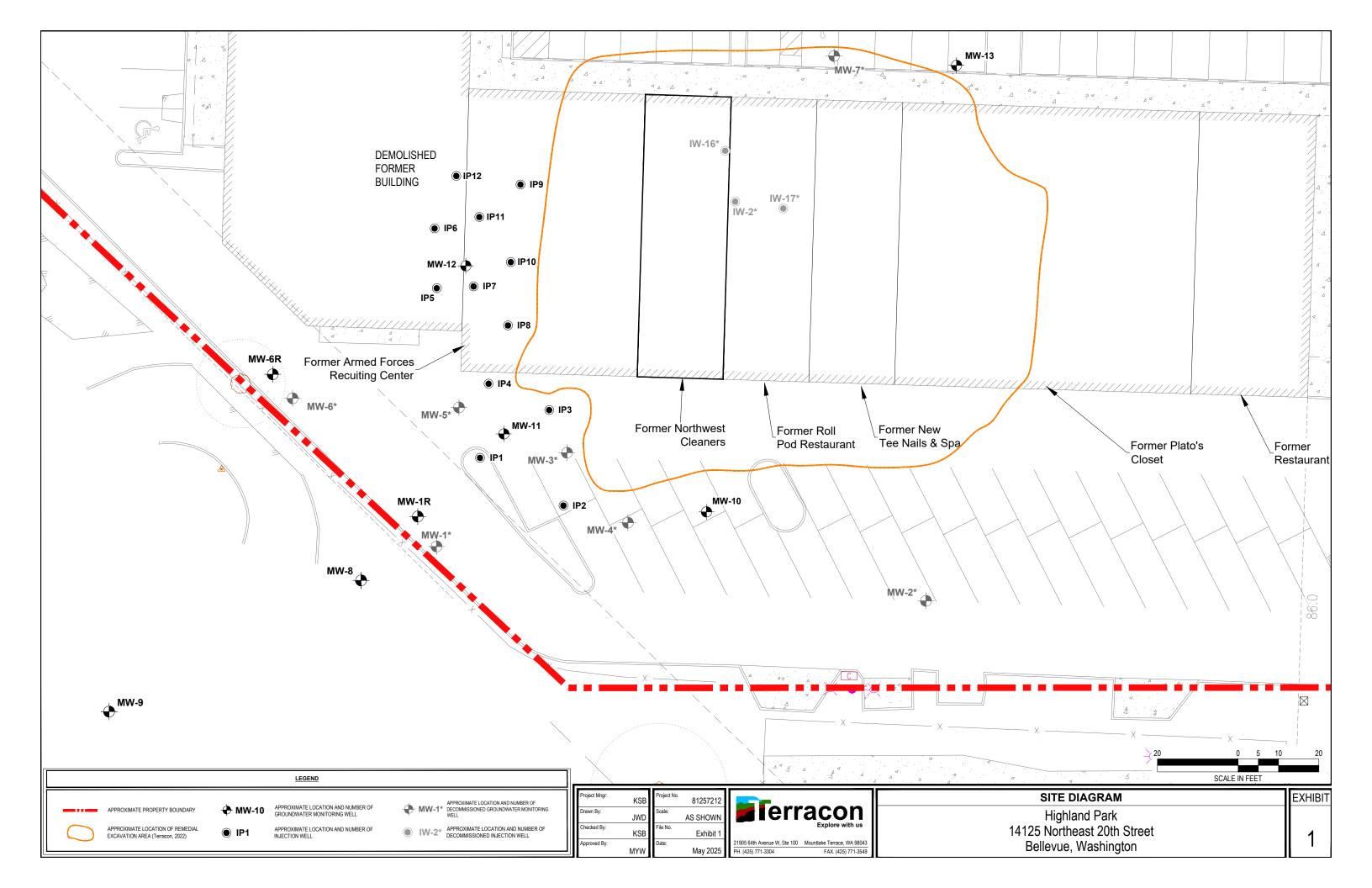
Kyle Bennett, L.G. Group Manager

Matt Wheaton, L.G. P.E. Senior Principal

Attachments:

Exhibit 1 – Site Diagram

Table 1 – Summary of Groundwater Analytical Results



## TABLE 1

#### SUMMARY OF GROUNDWATER ANALYTICAL RESULTS Highland Park 14125 Northeast 20th Street

#### Terracon Project No. 81207323

		All conce	entrations a	are in micrograms per liter (μg/L) <b>cVOCs</b> <sup>1</sup>					
						CVOUS			
Well ID (Top of Casing Elevation [feet])	Sample Date	Depth to Water (feet)	Ground- water Elevation (Feet)	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Cis-1,2- Dichloroethylene (cis-DCE)	Trans-1,2- Dichloroethylene (trans-DCE)	Vinyl Chloride (VC)	
мтс	CA Method	A Cleanup L	.evel	5	5	16*	160*	0.20	
	1/16/25 2.53 189.58			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	10/7/24	1.76	190.35	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	7/1/24			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	5/15/24	3.71	188.40	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	0.36	
	8/23/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.21	
	5/10/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.04	
	3/4/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.18	
	11/10/21			ND (<5)	ND (<2.5)	ND (<5)	ND (<5)	ND (<0.1)	
	8/25/21			ND (<1)	ND (<1)	ND (<1)	ND (<1)	0.26	
	5/20/21			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	2/17/21			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	11/24/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	8/21/20			ND (<1)	ND (<1)	1.2	ND (<1)	0.73	
	5/13/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	0.68	
	2/25/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	0.25	
	11/18/19			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
MW-8	8/8/19			ND (<1)	ND (<1)	ND (<1)	ND (<1)	0.22	
(192.11)	2/1/18			ND (<1)	ND (<1)	1.0	ND (<1)	2.9	
	3/17/15			ND (<1)	ND (<1)	ND (<1)	ND (<1)	1.4	
	4/21/09			ND (<1)	ND (<1)	11	ND (<1)	2.2	
	6/20/07			ND (<1)	ND (<1)	11	ND (<1)	7.3	
	8/15/06			ND (<0.2)	ND (<0.2)	3.4	0.20	1.5	
	3/24/06			ND (<0.2)	ND (<0.2)	0.43	ND (<0.2)	0.28	
1				ND	ND				

## All concentrations are in micrograms per liter (µg/L)

3/24/06		 ND (<0.2)	ND (<0.2)	0.43	ND (<0.2)	0.28
10/5/05	-	 ND (<0.2)	ND (<0.2)	7.0	0.30	3.5
6/24/05		 ND (<0.2)	0.67	16	0.45	13
2/14/05	-	 ND (<0.2)	0.60	15	0.41	12
11/11/04		 ND (<0.2)	ND (<0.2)	9.7	0.31	4.1
7/1/04		 ND (<0.2)	ND (<0.2)	6.8	0.23	4.8
3/1/04		 ND (<0.2)	0.65	17	0.43	16
10/2/03		 ND (<0.2)	0.86	11	0.53	28
7/1/03		 ND (<0.2)	ND (<0.2)	1.4	2.40	8.4
3/27/03		 ND (<0.2)	ND (<0.2)	6.2	0.38	32
12/6/02		 ND (<0.2)	0.43	2.8	0.26	6.1
8/26/02		 ND (<0.2)	0.74	3.2	0.24	15

# TABLE 1 SUMMARY OF GROUNDWATER RESULTS, CONT'D

		All conce	entrations a	re in microg	in micrograms per liter (μg/L) cVOCs <sup>1</sup>				
Well ID (Top of Casing Elevation [feet])	Sample Date	Depth to Water (feet)	Ground- water Elevation (Feet)	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Cis-1,2- Dichloroethylene (cis-DCE)	Trans-1,2- Dichloroethylene (trans-DCE)	Vinyl Chloride (VC)	
мтс	A Method	A Cleanup L	.evel	5	5	16*	160*	0.20	
	5/21/02			ND (<0.2)	ND (<0.2)	33	0.91	47	
	3/18/02			ND (<0.2)	ND (<0.2)	76	1.3	9.9	
MW-8	2/7/02			ND (<0.2)	0.28	82	1.3	7.5	
(192.11) (cont'd)	12/28/01			ND (<0.2)	0.46	88	1.3	6.4	
	10/25/01			0.68	30	110	2.9	7.8	
	8/9/01			4.2	29	57	1.1	1.7	
	1/16/25	1.32	187.48	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	10/7/24	3.73	185.07	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	7/1/24			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	5/15/24	3.05	185.75	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<0.02)	
	8/23/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	5/10/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.02	
	2/17/22			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	11/10/21			ND (<5)	ND (<2.5)	ND (<5)	ND (<5)	ND (<0.1)	
	8/25/21			1.4	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	5/20/21			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	2/17/21			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	11/24/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	8/21/20			ND (<3)	ND (<3)	ND (<3)	ND (<3)	ND (<0.2)	
MW-9	5/13/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
(188.80)	2/25/20			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	11/18/19			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	8/8/19			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	2/1/18			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	3/17/15			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	11/22/13			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	4/21/09			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	6/20/07			ND (<1)	ND (<1)	ND (<1)	ND (<1)	ND (<0.2)	
	8/15/06			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	3/24/06			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	10/5/05			ND (<0.2)	ND (<0.2)	(<0.2) ND (<0.2)	ND (<0.2)	ND (<0.2)	
	6/24/05			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	2/14/05			ND (<0.2)	ND (<0.2)	(<0.2) ND (<0.2)	(<0.2) ND (<0.2)	ND (<0.2)	
	11/11/04			ND (<0.2)	(<0.2) ND (<0.2)	(<0.2) ND (<0.2)	ND (<0.2)	ND (<0.2)	
				(<0.2)	(<0.2)	(<0.2)	(<0.2)	(<0.2)	

All concentrations are in micrograms per liter (µg/L)

#### TABLE 1 SUMMARY OF GROUNDWATER RESULTS, CONT'D

				are in micrograms per liter (µg/L) CVOCs <sup>1</sup>					
Well ID (Top of Casing Elevation [feet])	Sample Date	Depth to Water (feet)	Ground- water Elevation (Feet)	Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Cis-1,2- Dichloroethylene (cis-DCE)	Trans-1,2- Dichloroethylene (trans-DCE)	Vinyl Chloride (VC)	
МТС	A Method A	A Cleanup L	.evel	5	5	16*	160*	0.20	
	7/1/04			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	3/1/04			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	10/2/03			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	7/1/03			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	3/27/03			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	12/6/02			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
MW-9 (188.80) (cont'd)	8/26/02			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
(,	5/21/02			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	3/18/02			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	2/7/02			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	12/28/01			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	10/25/01			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	8/9/01			ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	ND (<0.2)	
	1/16/25	7.09	192.41	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
MW-10 (199.50)	10/7/24	8.53	190.97	ND (<1)	1.3	2.8	ND (<1)	ND (<0.02)	
	7/1/24			ND (<1)	1.0	ND (<1)	ND (<1)	0.025	
	1/16/25	7.87	191.36	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.12	
MW-11 (199.23)	10/7/24	9.02	190.21	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.19	
	7/1/24			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	0.10	
	1/16/25	8.05	192.32	ND (<1)	ND (<0.5)	2.3	ND (<1)	0.17	
MW-12 (200.37)	10/7/24	8.50	191.87	ND (<1)	ND (<0.5)	2.9	ND (<1)	0.35	
	7/1/24			ND (<1)	ND (<0.5)	1.1	ND (<1)	0.20	
	1/16/25	5.48	194.72	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
MW-13 (200.20)	10/7/24	6.19	194.01	ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	
	7/1/24			ND (<1)	ND (<0.5)	ND (<1)	ND (<1)	ND (<0.02)	

- Note: Concentrations detected above laboratory reporting limits are in **BOLD** type. Concentrations above MTCA cleanup levels are in  $\ensuremath{\mathsf{BOLD\,RED}}$  type and a shaded cell.
- cVOCs Chlorinated volatile organic compounds
- MTCA Model Toxics Control Act
  - ND Not detected above laboratory method reporting limits.
  - \* MTCA Method B Cleanup Level
  - -- Not analyzed
  - 1 See laboratory reports for full list of analytes.
  - The analyte response exceeded the valid instrument calibration range. The value
     reported is an astimute
    - reported is an estimate.