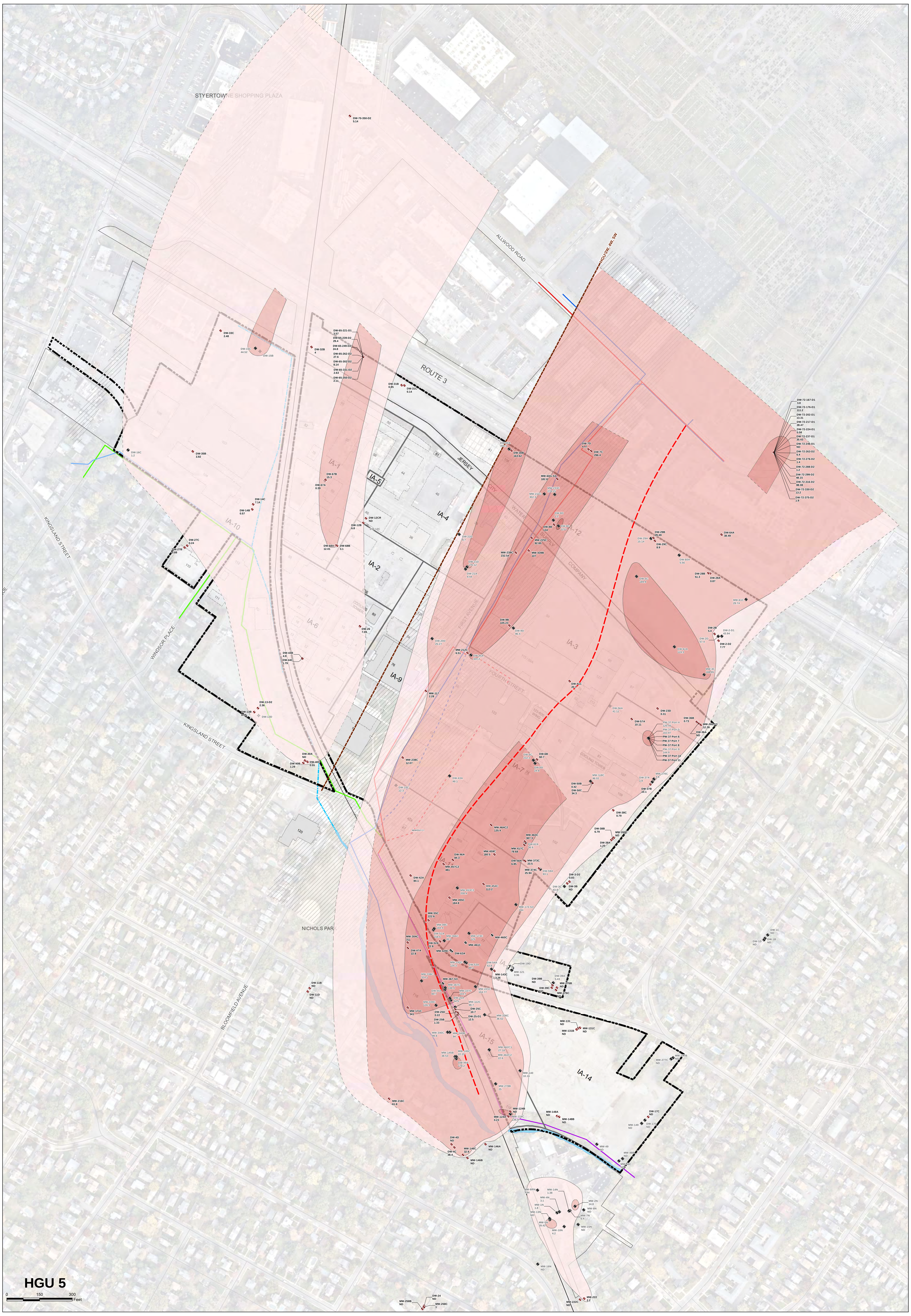


LEGEND

- HOFFMANN-LA ROCHE INC. SITE PROPERTY BOUNDARY
- INVESTIGATIVE AREAS
- OFF-SITE PROPERTY BOUNDARY
- DEMOLISHED BUILDING
- CURRENT BUILDING
- RAILROAD
- ROADWAY
- INFERRED HGU SUBCROP BOUNDARY
- APPROXIMATE FAULT ZONE
- ST. PAUL'S BROOK
- SPRINGER BROOK (CULVERT)
- ST. PAUL'S BROOK (CULVERT)
- VALLEY DRAIN
- FORMER VALLEY DRAIN
- CLIFTON-ALLWOOD MUNICIPAL SEWER
- FORMER CLIFTON-ALLWOOD MUNICIPAL SEWER
- NUTLEY MUNICIPAL SEWER
- TRUNK SEWER
- APPROXIMATE BOUNDARY BETWEEN OFF-SITE CAMS NORTH AND OFF-SITE EASTERN PLUMES

HGU 5 WELL LOCATIONS

- MW-454C 113.2 — WELL SAMPLED 3Q 2017 SEMI-ANNUAL & IRM PROGRAMS
- MW-233C 278.15 — WELL SAMPLED DURING PREVIOUS SAMPLING EVENTS - 1Q 2015 THROUGH 1Q 2017 (DATA USED FOR CONTOURING)
- DW-63A — WELL SAMPLED PRIOR TO 1Q 2015 (DATA NOT SHOWN)
- DW-12C — DECOMMISSIONED WELL THROUGH 3Q 2017

TOTAL PCE+ ISOCONCENTRATION CONTOURS (PCE, TCE, c-DCE, AND VC)

- >1 AND ≤10 PPB
- >10 AND ≤100 PPB
- >100 AND ≤1,000 PPB
- >1,000 AND ≤10,000 PPB

Asterisk indicates well not sampled for 1,4-dioxane
Well ID

* MW-454C			
PCE	TCE	c-DCE	Total PCE+
110	1.9	(1.3)	113.2

Data From Current Reporting Period - 3Q 2017

PCE+ Detections (non-exceeding results are shown in parentheses)

Asterisk indicates well not sampled for 1,4-dioxane
Well ID
Sample Date (Month/Year)

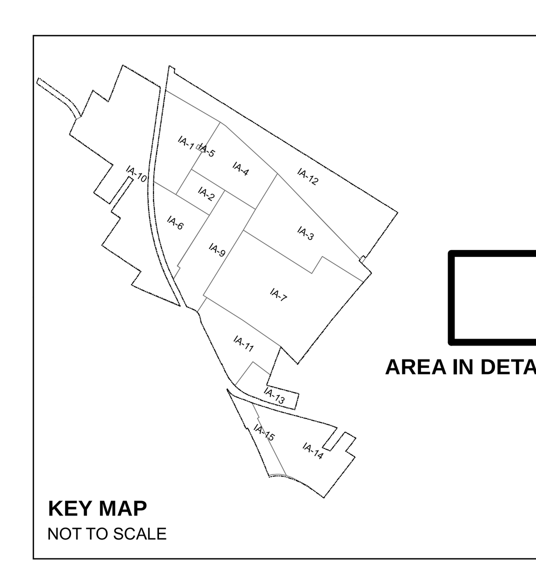
* MW-233C (11/2015)
Total PCE+
278.15

Data From Previous Sampling Events (used for contouring purposes)

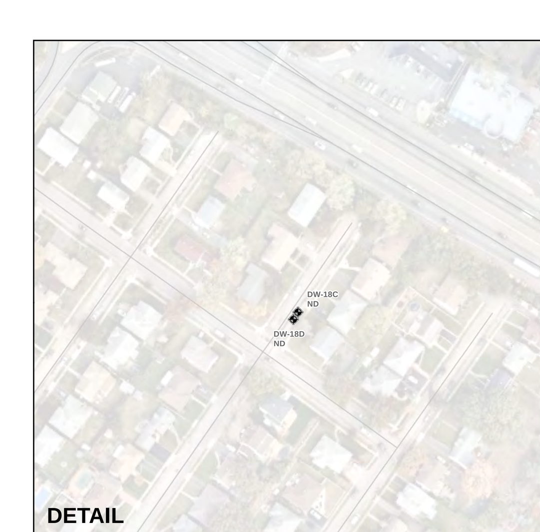
ABBREVIATION	GWQS (ppb)	COMPOUND
PCE	1	Tetrachloroethene
TCE	1	Trichloroethene
c-DCE	70	cis-1,2-Dichloroethene
VC	1	Vinyl Chloride

NOTES:

1. HGU = HYDROGEOLOGIC UNIT.
2. PCE+ = PCE AND BREAKDOWN PRODUCTS (TCE, c-DCE, AND VC).
3. THIS FIGURE DEPICTS THE PCE+ GROUNDWATER QUALITY DATA WITHIN HGUs, AS DEFINED IN THE JANUARY 2018 CONCEPTUAL SITE MODEL (CSM) REPORT.
4. HGUs DIP TO THE NORTHWEST AND THEREFORE HGUs 1, 2, 3, AND 4 ARE NOT UNIFORMLY PRESENT BENEATH THE ENTIRE SITE AS THEY SUBCROP (i.e., INTERSECT THE BEDROCK SURFACE) FROM EAST TO WEST ACROSS THE SITE. HGU SUBCROP BOUNDARIES FOR HGUs 1, 2, 3, AND 4 ARE SHOWN AND THE RESPECTIVE HGUs ARE NOT PRESENT EAST OF THESE LINES.
5. ALL CONCENTRATIONS ARE IN PARTS PER BILLION (PPB).
6. THE TOTAL SUM OF PCE+ DETECTIONS PRESENT IN GROUNDWATER ARE INCLUDED IN THE ISOCONCENTRATION CONTOURS.
7. THE DATA BOXES SHOW ALL GROUNDWATER CONTAMINANT DECTECTIONS FOR PCE+. PCE+ SAMPLE RESULTS AT AND BELOW THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUND WATER QUALITY STANDARDS (GWQS) ARE SHOWN IN PARENTHESES. PCE+ SAMPLE RESULTS GREATER THAN THE NJDEP GWQS ARE SHOWN WITHOUT THE PARENTHESES. WELLS WITH SAMPLES THAT HAVE NO DETECTIONS OF PCE+ ARE MARKED "ND".
8. THE DATA SUMMARIZED ON THIS FIGURE INCLUDE THE SITE-WIDE SEMI-ANNUAL SAMPLING EVENT CONDUCTED IN 3Q 2017 AND INTERIM REMEDIAL MEASURES (IRM) PERFORMANCE MONITORING DATA.
9. DURING THE 3Q 2017 SAMPLING EVENT, ALL WELLS WERE SAMPLED VIA PASSIVE DIFFUSION BAG (PDB) FOR VOLATILE ORGANIC COMPOUNDS (VOCs) BETWEEN OCTOBER 17, 2017 AND OCTOBER 31, 2017. DURING IRM PERFORMANCE MONITORING EVENTS WELLS WERE SAMPLED VIA LOW-FLOW FOR VOCs BETWEEN AUGUST 1, 2017 AND NOVEMBER 9, 2017. WESTBAY PORT SAMPLING (DW-65, DW-69, DW-70, AND DW-72) FOR VOCs WAS CONDUCTED BETWEEN SEPTEMBER 27, 2017 AND OCTOBER 4, 2017.
10. THE MOST RECENT HISTORICAL DATA WERE USED FOR WELLS THAT WERE NOT SAMPLED DURING THE CURRENT REPORTING PERIOD TO INTERPOLATE PCE+ CONTOURS. THESE DATA ARE SHOWN IN GRAY DATA BOXES.
11. IN SOME CASES, ADJACENT WELLS SCREENED AT DIFFERENT DEPTH INTERVALS HAVE CONCENTRATIONS THAT DIFFER BY MORE THAN AN ORDER OF MAGNITUDE. IN THESE CASES, THE WELL WITH THE HIGHEST CONCENTRATION WAS USED FOR CONTOURING PURPOSES.
12. TOTAL PCE+ ISOCONCENTRATION CONTOURS ARE SHOWN DASHED WHERE INFERRED.
13. WELLS SHOWN AT THE OFF-SITE NOVA PROPERTY WERE LAST SAMPLED BY ROCHE 2015.
14. SELECT WELLS SAMPLED DURING THE 3Q 2017 SAMPLING EVENT AND THE IRM PERFORMANCE MONITORING EVENTS WERE DECOMISSIONED SUBSEQUENT TO SAMPLING.
15. THE BOUNDARY BETWEEN THE OFF-SITE CAMS NORTH PLUME AND THE OFF-SITE EASTERN PLUME HAS BEEN IMPORTED FROM FIGURE 5.2 OF THE CSM REPORT (SEE APPENDIX A) ONTO THE RECENT PCE+ GROUNDWATER IMPACTS DETECTED IN THE EASTERN PORTION OF THE SITE. REFER TO APPENDIX A FOR THE FULL EXTENT OF OFF-SITE AND ON-SITE PLUMES IDENTIFIED IN THE CSM REPORT.



KEY MAP
NOT TO SCALE



DETAIL
SCALE: 1" = 150'

DATA FROM CURRENT REPORTING PERIOD - 3Q 2017

DW-2B

PCE	TCE	Total PCE+
3.4	2	5.4

DW-2-D2

PCE	TCE	c-DCE	VC	Total PCE+
2	1.9	(3.5)	(0.37)	7.77

DW-3B

Total PCE+
ND

DW-3-D2

PCE	Total PCE+
(0.83)	0.83

DW-4C

PCE	TCE	c-DCE	VC	Total PCE+
2.8	3.2	(25)	7.4	38.4

DW-4D

Total PCE+
ND

DW-6B

PCE	TCE	c-DCE	Total PCE+
37	6.7	(17)	60.7

DW-7C

PCE	TCE	c-DCE	VC	Total PCE+
1.6	3.9	290	(0.9)	296.4

DW-7D

PCE	TCE	c-DCE	Total PCE+
3	(0.48)	(0.99)	4.47

DW-8B

PCE	TCE	c-DCE	Total PCE+
110	11	(13)	134

DW-9B

PCE	TCE	c-DCE	VC	Total PCE+
(0.8)	(0.43)	(55)	49	105.23

DW-11B

Total PCE+
ND

DW-11D

Total PCE+
ND

DW-12B

PCE	TCE	c-DCE	Total PCE+
2.7	1.2	(2.9)	6.8

DW-12CR

Total PCE+
ND

DW-13B

PCE	TCE	c-DCE	VC	Total PCE+
(0.18)	2.9	(4.6)	(0.41)	8.09

DW-13-D2

PCE	c-DCE	VC	Total PCE+
(0.12)	(1.8)	(0.44)	2.36

DW-14B

c-DCE	VC	Total PCE+
(0.28)	(0.29)	0.57

DW-14C

PCE	TCE	c-DCE	VC	Total PCE+
(0.21)	(0.53)	(3.5)	2.9	7.14

DW-17C

Total PCE+
ND

DW-23D

TCE	Total PCE+
(0.31)	0.31

DW-24

Total PCE+
ND

DW-25B

PCE	c-DCE	Total PCE+
(0.96)	(0.37)	1.33

DW-25C

PCE	TCE	c-DCE	Total PCE+
8	1.2	(1.5)	10.7

DW-25D

PCE	Total PCE+
(0.22)	0.22

DW-25-D1

PCE	TCE	c-DCE	Total PCE+
9	1.3	(2.2)	12.5

DW-26

PCE	TCE	c-DCE	VC	Total PCE+
(0.38)	(0.92)	(4.8)	(0.99)	7.09

DW-27B

TCE	c-DCE	Total PCE+
(0.25)	(0.63)	0.88

DW-27C

TCE	Total PCE+
(0.24)	0.24

DW-28A

PCE	Total PCE+
(0.87)	0.87

DW-28B

PCE	TCE	c-DCE	Total PCE+
2	44	(5.3)	51.3

DW-29B

PCE	TCE	Total PCE+
29	(0.49)	29.49

DW-29C

PCE	TCE	c-DCE	Total PCE+
4.4	3.1	(1.4)	8.9

DW-30B

PCE	TCE	c-DCE	VC	Total PCE+
1.5	1.6	160	(0.52)	163.62

DW-31B

PCE	c-DCE	Total PCE+
(0.17)	(0.68)	0.85

DW-31C

PCE	Total PCE+
(0.14)	0.14

DW-32B

c-DCE	VC	Total PCE+
(2.3)	1.7	4

DW-33C

TCE	c-DCE	Total PCE+
(0.78)	(1.7)	2.48

DW-35B

PCE	TCE	c-DCE	VC	Total PCE+
(0.38)	(0.5)	(2.2)	(0.84)	3.92

DW-36A

Total PCE+
ND

DW-36B

PCE	TCE	c-DCE	Total PCE+
(0.14)	(0.29)	(0.3)	0.73

DW-37B

PCE	TCE	c-DCE	Total PCE+
6.5	2.1	(1.5)	10.1

DW-38A

PCE	TCE	Total PCE+
(0.86)	(0.39)	1.25

DW-38B

PCE	TCE	c-DCE	Total PCE+
4.6	(0.89)	(1.3)	6.79

DW-38C

PCE	Total PCE+
(0.79)	0.79

DW-39B

Total PCE+
ND

DW-39C

Total PCE+
ND

DW-40A

Total PCE+
ND

DW-40B

TCE	c-DCE	VC	Total PCE+
(0.26)	(0.76)	(0.27)	1.29

DW-40C

c-DCE	VC	Total PCE+
(0.33)	(0.22)	0.55

DW-41C

PCE	TCE	c-DCE	VC	Total PCE+
2.2	2	(16)	(0.5)	20.7

DW-42A

PCE	TCE	c-DCE	VC	Total PCE+
4	2.1	(29)	49	84.1

DW-44B

c-DCE	VC	Total PCE+
(3.2)	1.7	4.9

DW-44C

c-DCE	VC	Total PCE+
(0.49)	1.3	1.79

*** DW-46A**

PCE	TCE	c-DCE	Total PCE+
75	3.7	(5.6)	84.3

DW-47A

PCE	TCE	c-DCE	VC	Total PCE+
6	2.9	(12)	1.9	22.8

DW-50B

PCE	Total PCE+
(0.42)	0.42

DW-50C

PCE	TCE	c-DCE	Total PCE+
25	5.2	(4.1)	34.3

DW-52A

PCE	TCE	c-DCE	Total PCE+
13	2.7	(7.1)	22.8

DW-57A

PCE	TCE	c-DCE	Total PCE+
9.2	(0.64)	(0.27)	10.11

DW-58A

PCE	TCE	c-DCE	Total PCE+
(0.28)	(0.27)	(6.3)	6.85

DW-64A

PCE	TCE	Total PCE+
38	(0.49)	38.49

DW-65-221-D1

PCE	TCE	c-DCE	Total PCE+
(0.27)	1.1	(2.2)	3.57

DW-65-239-D2

PCE	TCE	c-DCE	Total PCE+
7.2	14	(8.2)	29.4

DW-65-249-D2

PCE	TCE	c-DCE	Total PCE+
3.1	13	(8.7)	24.8

DW-65-262-D2

PCE	TCE	c-DCE	Total PCE+
3.2	15	(9.4)	27.6

DW-65-302-D2

TCE	c-DCE	VC	Total PCE+
2.6	(5.3)	(0.24)	8.14

DW-65-331-D2

PCE	TCE	c-DCE	Total PCE+
(0.33)	1.2	(1.1)	2.63

DW-65-350-D2

PCE	TCE	c-DCE	Total PCE+
(0.24)	(0.93)	(0.94)	2.11

DW-67A

VC	Total PCE+
(0.39)	0.39

DW-67B

PCE	TCE	c-DCE	VC	Total PCE+
(0.5)	4.2	(9.3)	1.3	15.3

DW-68A

PCE	TCE	c-DCE	VC	Total PCE+
(0.51)	2.5	(7.5)	1.5	12.01

DW-68B

c-DCE	VC	Total PCE+
(1.6)	1.5	3.1

DW-70-350-D2

PCE	TCE	c-DCE	Total PCE+
(0.84)	3	(1.3)	5.14

DW-72-167-D1

PCE	Total PCE+
3.8	3.8

DW-72-176-D1

PCE	TCE	Total PCE+
110	1.2	111.2

DW-72-202-D1

PCE	TCE	Total PCE+
13	(0.31)	13.31

DW-72-217-D1

PCE	TCE	Total PCE+
28	(0.47)	28.47

DW-72-224-D1

PCE	Total PCE+
(0.58)	0.58

DW-72-237-D1

PCE	TCE	Total PCE+
35	(0.43)	35.43

DW-72-246-D1

Total PCE+
ND

DW-72-263-D2

PCE	Total PCE+
6.4	6.4

DW-72-276-D2

PCE	Total PCE+
1.4	1.4

DW-72-288-D2

PCE	Total PCE+
1.2	1.2

DW-72-299-D2

PCE	TCE	c-DCE	Total PCE+
42	5.6	(0.55)	48.15

DW-72-316-D2

PCE	TCE	c-DCE	Total PCE+
80	7.5	(0.58)	88.08

DW-72-330-D2

PCE	TCE	Total PCE+
12	1.2	13.2

DW-72-375-D2

PCE	Total PCE+
1.9	1.9

*** MW-55C**

PCE	TCE	c-DCE	Total PCE+
200	7.6	(15)	222.6

MW-60G-S3

PCE	TCE	c-DCE	Total PCE+
170	4.2	(8.6)	182.8

MW-117

TCE	c-DCE	VC	Total PCE+
(0.25)	(1.2)	(0.83)	2.28

MW-124A

PCE	Total PCE+
(0.23)	0.23

MW-124B

Total PCE+
ND

MW-131

Total PCE+
ND

MW-131B

Total PCE+
ND

MW-131C

Total PCE+
ND

MW-143C

PCE	TCE	Total PCE+
2.7	(0.56)	3.26

MW-146A

Total PCE+
ND

MW-146B

Total PCE+
ND

MW-146C

PCE	TCE	c-DCE	Total PCE+
28	2.3	(2.6)	32.9

MW-148A

Total PCE+
ND

MW-148B

Total PCE+
ND

MW-171C

PCE	TCE	c-DCE	Total PCE+
290	18	(33)	341

MW-212C

PCE	TCE	c-DCE	Total PCE+
2.9	(0.71)	(2.9)	6.51

MW-216C

PCE	TCE	c-DCE	Total PCE+
48	4.7	(9.1)	61.8

MW-222

PCE	Total PCE+
2.2	2.2

MW-222C

Total PCE+
ND

MW-225C

PCE	TCE	c-DCE	VC	Total PCE+
77	4.3	(11)	(0.55)	92.85

MW-238C

PCE	TCE	c-DCE	VC	Total PCE+
(0.77)	1.4	(9)	(0.9)	12.07

MW-239C

PCE	TCE	c-DCE	VC	Total PCE+
170	20	(42)	(0.54)	232.54

MW-258B

Total PCE+
ND

MW-258C

PCE	c-DCE	Total PCE+
(0.57)	(0.43)	1

MW-260-S3

PCE	TCE	Total PCE+
12	(0.38)	12.38

MW-269C

Total PCE+
ND

MW-276B

Total PCE+
ND

MW-276C

Total PCE+
ND

MW-304C

PCE	TCE	c-DCE	Total PCE+
250	21	(40)	311

MW-373C

PCE	TCE	c-DCE	Total PCE+
18	2.4	(3.1)	23.5

MW-374C

PCE	TCE	c-DCE	Total PCE+
20	5.6	(0.34)	25.94

MW-417C

PCE	TCE	c-DCE	Total PCE+
76	1.8	(0.88)	78.68

MW-439B

PCE	TCE	c-DCE	VC	Total PCE+
66	9	(31)	(1)	107

*** MW-454C**

PCE	TCE	c-DCE	Total PCE+
110	1.9	(1.3)	113.2

*** MW-455C**

PCE	TCE	c-DCE	Total PCE+
170	6.1	(8.7)	184.8

*** MW-457C2**

PCE	TCE	c-DCE	Total PCE+
440	14	(27)	481

*** MW-459C**

PCE	TCE	c-DCE	Total PCE+
170	4.9	(5.6)	180.5

*** MW-463C**

PCE	TCE	c-DCE	Total PCE+
380	5.4	(1.9)	387.3

*** MW-464C2**

PCE	TCE	c-DCE	Total PCE+
120	5.4	(10)	135.4

DATA FROM PREVIOUS SAMPLING EVENTS - 2Q 2015 THROUGH 1Q 2017

Well (Sample Date)	Total PCE+
* DW-1B (6/2015)	ND
* DW-1C (6/2015)	ND
* DW-1D (6/2015)	ND
* DW-2D (6/2015)	57.4
DW-2-D1 (6/2015)	43.94
* DW-3C (6/2015)	43.8
* DW-5C (6/2015)	189.9
* DW-6C (6/2015)	232.3
* DW-6D (6/2015)	24.8
* DW-8C (6/2015)	1211
* DW-8D (6/2015)	1.2
* DW-9D (6/2015)	96.4
* DW-10C (6/2015)	12.3
* DW-15C (6/2015)	44.52
DW-16C (6/2015)	1.2
* DW-17D (6/2015)	ND
* DW-18C (6/2015)	ND
* DW-18D (6/2015)	ND
* DW-20D (6/2015)	25.27
DW-21A (3/2016)	9.44
DW-21D (3/2016)	176.12
* DW-22D (6/2015)	8.7
* DW-25A (6/2015)	54.5
* DW-29A (6/2015)	15.14
* DW-30A (6/2015)	709.3
* DW-37A (6/2015)	1.8
* DW-39A (6/2015)	5.43
DW-43A (3/2017)	49.1
DW-45A (3/2017)	320.2
DW-49A (10/2015)	178.2
* DW-51A (6/2015)	158.6
* DW-53A (6/2015)	89.1
* DW-54A (6/2015)	53.8
DW-55A (10/2015)	84.7
* DW-56A (6/2015)	41.11
* DW-59A (6/2015)	93.1
* DW-60A (6/2015)	5.56
* DW-61A (6/2015)	119.3
* DW-62A (6/2015)	56.6
* MW-1N (6/2015)	1.8
* MW-2N (6/2015)	14.8
* MW-3C (6/2015)	188.95
* MW-4N (6/2015)	3.1
* MW-5N (6/2015)	29.42
* MW-6RN (6/2015)	7.94
* MW-7N (6/2015)	6.4
* MW-8N (6/2015)	ND
* MW-10N (6/2015)	4.2
* MW-13N (6/2015)	ND
* MW-14N (6/2015)	1.38
* MW-15N (6/2015)	ND
* MW-16N (6/2015)	ND
* MW-48B (6/2015)	ND
* MW-48C (6/2015)	ND
* MW-49 (6/2015)	ND
* MW-61C (6/2015)	29.74
* MW-99C (6/2015)	194.4
MW-112C (9/2015)	99.7
* MW-118C (7/2015)	46.02
* MW-121 (6/2015)	0.96
MW-124C (9/2015)	136.8
* MW-140 (6/2015)	10.16
* MW-142C (6/2015)	126.2
MW-145B (10/2015)	38.53
MW-145C (10/2015)	22.25
* MW-149 (6/2015)	ND
* MW-172-S3 (6/2015)	144
* MW-173C (10/2015)	125
* MW-211C (9/2015)	302.3
MW-221C (9/2015)	104.77
* MW-233C (11/2015)	278.15
* MW-270C (6/2015)	3.8
* MW-277B (6/2015)	ND
* MW-277C (6/2015)	ND
* MW-278B (6/2015)	25
* MW-336C (6/2015)	36.62
* MW-337C (6/2015)	104.7
MW-338C (10/2015)	324.1
MW-339C (10/2015)	126.3
MW-340B (10/2015)	94
MW-340C (10/2015)	99.8
* MW-366C (6/2015)	45.1
MW-367C (10/2015)	148.4
* MW-453C2 (10/2015)	208.4
* MW-462C1 (8/2015)	27.16
* MW-462C2 (8/2015)	22.6
* PW-37 PORT 4 (4/2015)	120.45
* PW-37 PORT 5 (4/2015)	163.87
* PW-37 PORT 9 (4/2015)	144.9

PROJECT:
HOFFMANN-LA ROCHE INC. SITE
NUTLEY, NEW JERSEY

TITLE:
PCE+ IN GROUNDWATER HGU 5 - 3Q 2017

DATE: FEBRUARY 2019 | PROJ. NO.: 198233

FIGURE 11

TRC ENVIRONMENTAL CORP.
41 Spring Street, Suite 102
New Providence, New Jersey 07974
908-988-1700

FILE NO.: ROCHE CVOC - HGU 5.mxd

Plot Date: 2/22/2019, 12:50:20 PM by TZORN -- LAYOUT: ANSI D (22"x34")
Path: \\newprov-fp1\Environmental\Drafting Files\ArcGIS Files\105009\GWPR\2017 3Q\MAP DOCUMENTS\CVOC\ROCHE CVOC - HGU 5.mxd