TETRA TECH

TECHNICAL MEMORANDUM

To:	Brian Waite, P.G., Wisconsin Department of Natural Resources
Cc:	Michael Holt, U.S. Environmental Protection Agency Dennis Schwind, Environmental Technician, Pentair David Flynn, EHS Manager, Pentair
From:	Mark Manthey, P.G., Tetra Tech
Date:	July 1, 2024
Subject:	Pentair Delavan, Wisconsin Facility 1,4-Dioxane Sampling Plan 293 S. Wright Street, Delavan, Wisconsin BRRTS #02-65-529579 EPA ID: WID980820062

INTRODUCTION

Per the request made in the May 2, 2024 letter from the Wisconsin Department of Natural Resources (WDNR), Tetra Tech on behalf of Pentair has prepared the following plan to collect groundwater samples from select wells located on the Pentair Delavan facility property located at 293 S. Wright in Delavan, Wisconsin for laboratory analysis of 1,4-dioxane. The WDNR made this request because 1,1,1-trichloroethane (1,1,1-TCA) is one of the contaminants of concern (COCs) in the groundwater plume located on the Pentair Delavan facility and 1,4-dioxane often occurs as a co-contaminant with 1,1,1-TCA. 1,4-dioxane often has been used as a stabilizer and corrosion inhibitor with solvents containing 1,1,1-TCA. The other COCs are tetrachloroethene (PCE), 1,1,2-TCA, and trichloroethene (TCE). A site layout figure showing the locations of the Delavan facility monitor wells and extraction wells and the source areas of the chlorinated volatile organic compounds (CVOCs) impacts to the environment is included as Figure 1. As shown in Figure 1, two buildings designated Plant 1 and Plant 2 are located on the Delavan facility property. The groundwater analytical results from the past 24 years for groundwater samples collected from the Delavan facility monitor wells and extraction wells are summarized in Table 1.

SAMPLING PLAN RATIONALE

The Delavan facility wells that will be tested for 1,4-dioxane will include the wells that had detections of 1,1,1-TCA in one or more groundwater samples collected from the well over the past 24 years. Three Plant 1 monitor wells, Plant 1 extraction well EX-3R, and two Plant 2 monitor wells will be tested for 1,4-dioxane. The wells that will be tested for 1,4-dioxane and the rationale are listed below:

TETRA TECH
13555 Bishops Ct, Suite 201, Brookfield, WI 53005
Tel 262.792.1282 Fax 262.792.1310 www.tetratech.com

Well ID	Location	Rationale
EX-3R	Plant 1	Extraction well with the highest concentration and most recent detection of 1,1.1-TCA.
MW-1026	Plant 1	1,1,1-TCA consistently detected. Located downgradient of Former Chip Storage Extraction System (CSES) Source Area
MW-1027	Plant 1	1,1,1-TCA consistently detected.
TW-4	Plant 1	1,1,1-TCA consistently detected. Located near the source area beneath and south of Plant 1. Had the highest reported concentration of 1,1,1-TCA (450 µg/L in 4/25/2000 sample).
MW-2011	Plant 2	Plant 1 monitor well with most 1,1,1-TCA detections. Located downgradient of former Southeast Extraction System (SES) source area.
D-15	Plant 2	Located at former sump source area and had detections of 1,1,1-TCA in samples collected between April, 2000 and November, 2002.

SAMPLING AND ANALYTICAL METHOD

The groundwater samples will be collected from the monitor wells using dedicated bailers and rope. An electronic water level meter will be used to measure the depth to groundwater and total well depth of the monitor wells prior to purging and sampling the monitor wells. The depth to groundwater and well depth measurements will be used to calculate the volume of the water column in the monitor well that will be purged prior to collecting the groundwater sample for laboratory analysis. Approximately three to four well casing volumes of groundwater will be purged from the monitor wells before the groundwater samples submitted for laboratory analysis are collected. Field measurements of sample temperature, pH, and electrical conductance will be collected using a portable digital pH-salinity-conductivity-temperature meter. The field measurements and color, odor, and clarity of the samples will be recorded on Tetra Tech field water quality sampling and analysis forms (Attachment A).

The groundwater samples will be submitted to a Wisconsin certified laboratory for analysis of 1,4-dioxane EPA Method 8270 SIM. The groundwater samples submitted for laboratory analysis of 1,4-dioxane will be collected in two 250-ml unpreserved amber glass sample bottles provided by the laboratory. The sample containers will be filled to the top of the container. The samples will be kept chilled to at least 4 degrees Celsius prior to analysis and will be delivered to the laboratory following standard chain-of-custody procedures. The method detection limit with no dilution is 0.100 µg/L. The quantitation limit with no dilution is 0.200 µg/L.

One duplicate sample will be collected from one of the wells. A field blank sample prepared by the Tetra Tech personnel performing the sampling event will accompany the samples during delivery to the laboratory. The field blank will be prepared the day the groundwater samples are collected from the wells and will consist of distilled water poured into sample bottles provided by the laboratory subcontractor. The duplicate and field blank samples will be submitted for

laboratory analysis of 1,4-dioxane by EPA Method 8270SIM for Quality Assurance/Quality Control (QA/QC) purposes.

The duplicate samples will be identified by a "DUP" designation after the well identification. For example, a duplicate sample collected from monitor well TW-4 will be identified as TW-4DUP. The trip blank will have a "FB" designation and will be numbered sequentially in the order that they are sent to the laboratory. For example, trip blank FB-1 would be the first field blank sample sent to the laboratory during the sampling event.

Each sample container will have a label affixed to it. The label on each container will contain the following information:

- Project name or project number.
- Date and time the sample was collected.
- Well/Sample identification.
- Sampler's initials.
- Preservative.

SCHEDULE AND REPORTING

The 1,4-dioxane sampling event will be scheduled to take place in conjunction with the 2024 annual groundwater sampling event of the Delavan facility, which is tentatively scheduled to take place the week of July 8 to July 14, 2024. The annual and 1,4-dioxane sampling events will take two to three days to complete, weather permitting.

The analytical results will be submitted to the WDNR within ten (10) business days of receiving the analytical report from the laboratory subcontractor. The submittal will be submitted to the WDNR in Adobe Portable Document Format (PDF) via the online WDNR RR Program Submittal Portal and will include the laboratory analytical report(s), a table summarizing the analytical results, and a preliminary analysis of the analytical data.

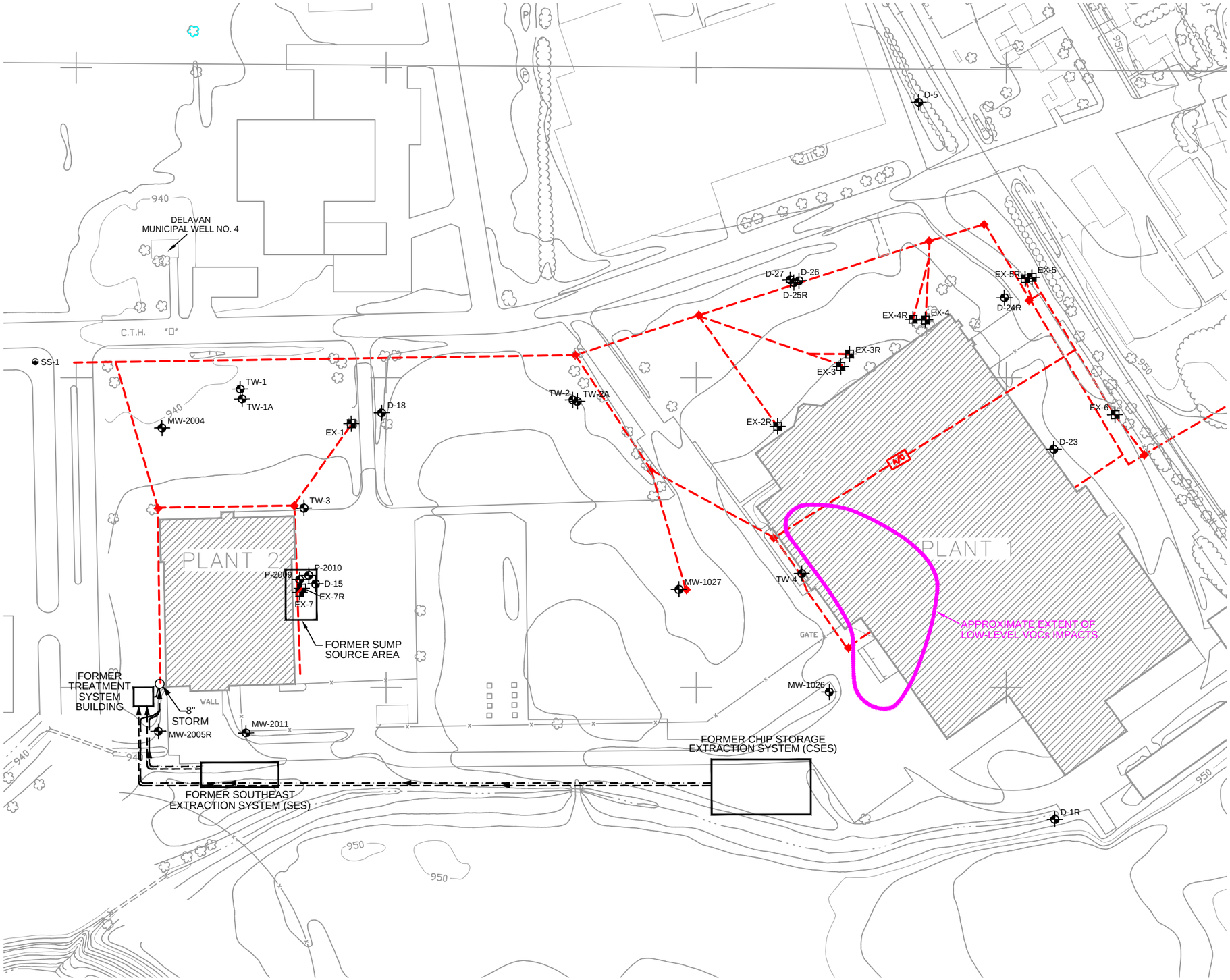
Attachments:

Figure 1. Delavan Facility Layout and Well Locations

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 – 2023 Sampling Events

A: Tetra Tech Field Water Quality Sampling and Analysis Form

FIGURE AND TABLE



Base map from Areo-Metric Engineering, 4/16/88.

EXPLANATION

MW-2004	MONITOR WELL LOCATION AND DESIGNATION
E-3	EXTRACTION WELL LOCATION AND DESIGNATION
SS-1	STORM SEWER SAMPLE LOCATION AND DESIGNATION
P-2009	PIEZOMETER LOCATION AND DESIGNATION
	EXTRACTION WELL/ STORM SEWER PIPING

N

SCALE

0 330

Feet

STA-RITE INDUSTRIES, INC. DELAVAN, WISCONSIN	DATE: 12/16/17	
	DESIGNED:	HJW
DELAVAN FACILITY LAYOUT AND WELL LOCATIONS	CHECKED:	MAM
	APPROVED:	MAM
	DRAWN:	HJW
	PROJ.: 117-7469002	
TETRA TECH	Figure 1	

S:\CAD\STA-RITE\DELAVAN\12-13-17\FIG3.DWG

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
Plant #1 Wells							
MW-1026	09/25/03	<0.50	**25**	**6.1**	<0.25	<0.25	31.1
	12/15/03	<0.50	**34**	**10**	<0.20	<0.25	44
	12/14/05	<0.50	**91**	**21**	**0.27**	<0.20	112.27
	07/31/06	<1.0	**93**	**18**	NA	NA	111
	07/31/07	<0.50	**41**	**9.8**	<0.25	<0.20	50.8
	08/19/08	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/28/09	<0.50	**6.9**	**8**	<0.25	<0.20	14.9
	07/14/10	<0.50	**15**	**3.2**	<0.25	<0.20	18.2
	07/21/11	<0.50	**20**	**5.9**	<0.25	<0.20	25.9
MW-1026	07/10/12	<0.17	**25**	**7.3**	<0.28	<0.10	32.3
	07/24/13	<0.17	**15**	**4.4**	<0.28	<0.10	19.4
	07/29/14	<0.17	**7.4**	**1.8**	<0.28	<0.10	9.2
	07/14/15	<0.17	**18**	**5.3**	<0.28	<0.10	23.3
	07/29/16	<0.37	**21**	**6.2**	<0.35	<0.20	27.2
	07/13/17	<0.37	**14**	**3.6**	<0.35	<0.20	17.6
	07/30/18	<0.37	**11**	**2.7**	<0.35	<0.20	13.7
	07/18/19	<0.37	**2.8**	**0.98**	<0.35	<0.20	3.78
	07/22/20	<0.37	**3.2**	**1.3**	<0.35	<0.20	4.5
	07/22/21	<0.37	**5.6**	**1.6**	<0.35	<0.20	7.2
	07/20/22	<0.37	**11**	**3.5**	<0.35	<0.20	14.5
MW-1026	07/20/23	<0.37	**12**	**4.8**	<0.35	<0.20	16.8
MW-1027	04/25/00	<3.2	**13**	**320**	NA	<2.3	333
	09/25/00	<3.2	**9.4**	**220**	NA	NA	229.4
MW-1027	04/23/01	<1.0	**4.8**	**150**	NA	<1.0	154.8
	10/02/01	<1.0	**7.5**	**240**	<1.0	NA	247.5
	04/16/02	<1.2	**15**	**330**	<1.2	NA	345
	11/19/02	<1.2	**17**	**260**	<1.2	NA	277
	06/24/03	<5.0	**13**	**200**	<2.5	NA	213
	10/20/03	<0.50	**16**	**230**	<0.25	NA	246
	09/21/04	<2.0	**21**	**170**	NA	<0.80	191
	12/14/05	<0.50	**45**	**96**	**0.38**	<0.20	141.38
MW-1027	07/31/06	<1.0	**34**	**120**	NA	NA	154

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
MW-1027	07/31/07	<0.50	**37**	**95**	<0.25	<0.20	132
	08/19/08	<0.50	**32**	**88**	<0.25	<0.20	120
MW-1027	07/28/09	<0.50	**22**	**52**	<0.25	<0.20	74
	07/14/10	<0.50	**19**	**100**	<0.25	<0.20	119
	07/21/11	<0.50	**8.5**	**65**	<0.25	<0.20	73.5
	07/10/12	<0.17	**6.3**	**57**	<0.28	<0.10	63.3
	07/24/13	<0.17	**6.2**	**47**	<0.28	<0.10	53.2
MW-1027	07/29/14	<0.17	**6.1**	**42**	<0.28	<0.10	48.1
	07/14/15	<0.17	**3.7**	**39**	<0.28	<0.10	42.7
	07/29/16	<0.37	**6.8**	**34**	<0.35	<0.20	40.8
	07/13/17	<0.37	**7.1**	**27**	<0.35	<0.20	34.1
	07/30/18	<0.37	**4.9**	**27**	<0.35	<0.20	31.9
	07/17/19	<0.37	**4.9**	**41**	<0.35	<0.20	45.9
	07/22/20	<0.37	**2.5**	**37**	<0.35	<0.20	39.5
	07/21/21	<0.37	**4.3**	**46**	<0.35	<0.20	50.3
	07/20/22	<0.37	**5.4**	**44**	<0.35	<0.20	49.4
MW-1027	07/21/23	<0.37	**1.3**	**30**	<0.35	<0.20	31.3
TW-4	04/25/00	<3.2	**450**	**280**	NA	<2.3	730
	09/26/00	<6.3	**340**	**230**	<1.5	<4.6	570
	04/23/01	**0.60**	**290**	**240**	NA	<0.25	530.6
	10/02/01	<2.0	**190**	**140**	<2.0	<2.0	330
	04/16/02	<0.25	**76**	**60**	**1.5**	<0.25	137.5
TW-4	06/24/03	<1.0	**120**	**89**	**1.4**	<1.0	210.4
	09/21/04	<0.50	**64**	**39**	NA	<0.20	103
	12/14/05	<0.50	**65**	**35**	**0.92**	<0.20	100.92
	07/31/06	<0.50	**92**	**60**	**1.3**	<0.20	153.3
	07/31/07	<0.50	**50**	<0.20	<0.25	<0.20	50
	08/20/08	<0.50	**71**	**36**	**0.73**	<0.20	107.73
	07/28/09	<0.50	**52**	**25**	**0.34**	<0.20	77.34
TW-4	07/14/10	<0.50	**75**	**52**	**0.28**	<0.20	127.28
	07/21/11	<0.50	**38**	**42**	**0.28**	<0.20	80.28
	07/10/12	<0.17	**48**	**53**	<0.28	<0.10	101
TW-4	07/24/13	<0.17	**26**	**23**	<0.28	<0.10	49

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SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
TW-4	07/29/14	<0.17	**29**	**20**	<0.28	<0.10	49
	07/14/15	<0.17	**30**	**36**	<0.28	<0.10	66
TW-4	07/29/16	<0.37	**20**	**15**	<0.35	<0.20	35
	03/01/17	<0.37	**17**	**8.0**	<0.35	<0.20	25
TW-4	05/17/17	<0.37	**22**	**11**	<0.35	<0.20	33
	07/13/17	<0.37	**27**	**19**	<0.35	<0.20	46
TW-4	10/24/17	<0.37	**22**	**16**	<0.35	<0.20	38
	02/28/18	<0.37	**20**	**11**	<0.35	<0.20	31
TW-4	05/10/18	<0.74	**27**	**16**	<0.33	<0.50	43
	07/30/18	<0.37	**26**	**18**	<0.35	<0.20	44
	07/18/19	<0.37	**26**	**18**	<0.35	<0.20	44
	07/23/20	<0.37	**20**	**21**	<0.35	<0.20	41
TW-4	07/22/21	<0.37	**19**	**14**	<0.35	<0.20	33
	07/20/22	<0.37	**24**	**20**	<0.35	<0.20	44
TW-4	07/21/23	<0.37	**15**	**17**	<0.35	<0.20	32
D-25R	04/25/00	**1.0**	**3.5**	**4.0**	NA	<0.46	8.5
	09/26/00	**0.82**	**4.5**	**4.7**	NA	NA	10.02
	04/23/01	**0.45**	**3.1**	**4.3**	NA	<0.25	7.85
	10/02/01	**0.58**	**4.0**	**3.8**	<0.25	NA	8.38
D-25R	04/16/02	**0.58**	**4.3**	**4.7**	<0.25	NA	9.58
	11/19/02	**0.87**	**7.6**	**6.2**	<0.25	NA	14.67
	06/24/03	**0.86**	**6.1**	**7.7**	<0.25	NA	14.66
D-25R	10/20/03	**0.71**	**4.3**	**4.6**	<0.25	NA	9.61
	09/21/04	**0.61**	**3.5**	**3.3**	NA	<0.20	7.41
	12/13/05	**0.59**	**15**	**12**	<0.25	<0.20	27.59
D-25R	07/31/06	**0.53**	**12**	**25**	NA	NA	37.53
	07/31/07	<0.50	**8.0**	**12**	<0.25	<0.20	20
	08/20/08	**0.51**	**7.3**	**8.3**	<0.25	<0.20	16.11
D-25R	07/28/09	<0.50	**6.2**	**6.0**	<0.25	<0.20	12.2
	07/13/10	<0.50	**8.4**	**7.6**	<0.25	<0.20	16
	07/20/11	<0.50	**1.4**	**2.7**	<0.25	<0.20	4.1
	07/10/12	<0.17	**1.3**	**1.4**	<0.28	<0.10	2.7
D-25R	07/24/13	<0.17	**1.0**	**1.0**	<0.28	<0.10	2

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
D-25R	07/29/14	<0.17	**0.7**	**0.82**	<0.28	<0.10	1.49
	07/14/15	<0.17	<0.20	**0.71**	<0.28	<0.10	0.71
	07/28/16	<0.37	<0.38	**0.57**	<0.35	<0.20	0.57
	07/12/17	<0.37	**2.9**	**2.3**	<0.35	<0.20	5.2
	07/30/18	<0.37	<0.38	**0.55**	<0.35	<0.20	0.55
	07/17/19	<0.37	**0.55**	**0.54**	<0.35	<0.20	1.09
	07/22/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/21/21	<0.37	<0.38	**0.46**	<0.35	<0.20	0.46
	07/19/22	<0.37	0.62	**0.54**	<0.35	<0.20	1.16
D-25R	07/21/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
EX-2R	04/18/00	<0.63	**1.3**	**3.7**	NA	<0.46	5
	09/26/00	<0.63	**18**	**36**	NA	<0.46	54
	04/19/01	<0.25	**2.6**	**8.4**	NA	<0.25	11
	10/02/01	<0.25	**16**	**34**	<0.25	NA	50
	04/16/02	<0.25	**8.4**	**22**	<0.25	NA	30.4
	06/24/03	<0.50	**0.69**	**2.9**	<0.25	NA	3.59
EX-2R	09/21/04	<0.50	**11**	**25**	NA	<0.20	36
	07/31/06	<0.50	**0.61**	**1.7**	NA	NA	2.31
	07/31/07	<0.50	**6.3**	**6.7**	<0.25	<0.20	13
	08/20/08	<0.50	**15**	**22**	<0.25	<0.20	37
EX-2R	07/28/09	<0.50	**5.0**	**4.5**	<0.25	<0.20	9.5
	10/05/10	<0.50	**8.2**	**21**	<0.25	<0.20	29.2
	07/21/11	<0.50	**5.0**	**15**	<0.25	<0.20	20
EX-2R	07/11/12	<0.17	**3.2**	**9.8**	<0.28	<0.10	13
	07/24/13	<0.17	**4.6**	**7.0**	<0.28	<0.10	11.6
EX-2R	07/30/14	<0.17	**3.3**	**5.8**	<0.28	<0.10	9.1
	07/15/15	<0.17	**1.4**	**3.8**	<0.28	<0.10	5.2
	07/28/16	<0.37	**4.2**	**7.1**	<0.35	<0.20	11.3
	10/24/17	<0.37	**3.7**	**6.3**	<0.35	<0.20	10
	07/31/18	<0.37	**1.7**	**3.6**	<0.35	<0.20	5.3
	07/18/19	<0.37	**1.0**	**2.8**	<0.35	<0.20	3.8
	07/23/20	<0.37	<0.38	**2.4**	<0.35	<0.20	2.4
EX-2R	07/22/21	<0.37	**0.47**	**2.1**	<0.35	<0.20	2.57

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SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
EX-2R	07/20/22	<0.37	<0.38	**0.67**	<0.35	<0.20	0.67
EX-2R	07/21/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
EX-3	04/18/00	<0.63	**37**	**55**	NA	<0.46	92
	09/26/00	<0.63	**25**	**28**	NA	NA	53
EX-3	04/19/01	<0.25	**27**	**38**	NA	<0.25	65
	10/02/01	<0.25	**13**	**17**	<0.25	NA	30
	04/16/02	<0.25	**21**	**28**	<0.25	NA	49
	06/24/03	<0.50	**23**	**46**	<0.25	NA	69
	09/21/04	<0.50	**13**	**17**	NA	<0.20	30
EX-3	12/14/05	<0.50	**28**	**34**	**0.29**	<0.20	62.29
	07/31/06	<0.50	**32**	**66**	NA	NA	98
	07/31/07	<0.50	**15**	**25**	<0.25	<0.20	40
	08/20/08	<0.50	**7.5**	**3.6**	<0.25	<0.20	11.1
	07/28/09	<0.50	**14**	**21**	<0.25	<0.20	35
	07/14/10	<0.50	**38**	**29**	**0.34**	<0.20	67.34
EX-3	07/21/11	<0.50	**34**	**33**	**0.33**	<0.20	67.33
	07/11/12	<0.17	**15**	**18**	<0.28	<0.10	33
	07/24/13	<0.17	**2.2**	**2.2**	<0.28	<0.10	4.4
EX-3	07/30/14	<0.17	**1.6**	**2.2**	<0.28	<0.10	3.8
EX-3	07/15/15	<0.17	**3.1**	**3.5**	<0.28	<0.10	6.6
EX-3R	10/24/17	<0.37	**2.3**	**3.3**	<0.35	<0.20	5.6
	07/31/18	<0.37	**2.4**	**2.4**	<0.35	<0.20	4.8
	07/18/19	<0.37	**4.5**	**5.2**	<0.35	<0.20	9.7
	07/23/20	<0.37	**5.0**	**6.3**	<0.35	<0.20	11.3
	07/22/21	<0.37	**4.2**	**5.6**	<0.35	<0.20	9.8
	07/20/22	<0.37	**3.9**	**5.7**	<0.35	<0.20	9.6
EX-3R	07/21/23	<0.37	**2.6**	**5.0**	<0.35	<0.20	7.6
EX-4R	07/18/19	<0.37	**1.0**	**1.0**	<0.35	<0.20	2
EX-5R	07/18/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
EX-6	07/18/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
Plant #2 Wells							
D-18	04/25/00	**4.9**	<0.28	**6.6**	NA	<0.46	11.5
D-18	09/25/00	**2.5**	<0.28	**2.4**	NA	NA	4.9

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
D-18	04/19/01	**3.0**	<0.25	**3.8**	NA	<0.25	6.8
	09/27/01	**3.2**	<0.25	**6.6**	<0.25	NA	9.8
	04/17/02	**2.6**	<0.25	**3.0**	<0.25	NA	5.6
	06/20/03	**9.1**	<0.50	**20**	<0.25	NA	29.1
	10/20/03	**Not Sampled.**					
D-18	09/20/04	**3.4**	<0.50	**1.9**	NA	<0.20	5.3
	12/14/05	<0.50	<0.50	**0.24**	<0.25	<0.20	0.24
	07/31/06	<0.50	<0.50	<0.20	NA	NA	0
D-18	07/31/07	<0.50	<0.50	<0.20	<0.25	<0.20	0
	08/19/08	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/28/09	**1.4**	<0.50	**1.0**	<0.25	<0.20	2.4
	07/13/10	<0.50	<0.50	<0.20	<0.25	<0.20	0
D-18	07/20/11	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/10/12	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/24/13	<0.17	<0.20	<0.19	<0.28	<0.10	0
D-18	07/29/14	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/14/15	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/28/16	<0.37	<0.38	**0.47**	<0.35	<0.20	0.47
	07/12/17	<0.37	<0.38	**0.61**	<0.35	<0.20	0.61
D-18	07/30/18	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/17/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/22/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/21/21	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/19/22	**0.93**	<0.38	**0.71**	<0.35	<0.20	1.64
	02/01/23	**1.1**	<0.38	**0.63**	<0.35	<0.20	1.73
	05/18/23	**1.1**	<0.38	**0.63**	<0.35	<0.20	1.73
	07/20/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
D-18	11/01/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2004	04/26/00	<0.63	<0.28	<0.49	NA	NA	0
	09/27/01	<0.25	<0.25	<0.25	<0.25	NA	0
	11/18/02	<0.25	<0.25	<0.25	<0.25	NA	0
	06/20/03	<0.50	<0.50	<0.25	<0.25	NA	0
	09/20/04	<0.50	<0.50	<0.20	NA	<0.20	0
MW-2004	12/13/05	<0.50	<0.50	**0.50**	<0.25	<0.20	0.5

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
MW-2004	07/29/06	<0.50	<0.50	**0.37**	NA	NA	0.37
	07/31/07	<0.50	<0.50	<0.20	<0.25	<0.20	0
	08/19/08	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/28/09	<0.50	<0.50	<0.20	<0.25	<0.20	0
MW-2004	07/13/10	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/20/11	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/10/12	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/24/13	<0.17	<0.20	<0.19	<0.28	<0.10	0
MW-2004	07/29/14	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/14/15	<0.17	<0.20	**0.65**	<0.28	<0.10	0.65
	07/28/16	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/12/17	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/30/18	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/17/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/22/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/21/21	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/19/22	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2004	07/20/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2005	04/25/00	**1.2**	<0.28	<0.49	NA	<0.46	1.2
	09/25/00	**1.7**	<0.28	<0.49	NA	NA	1.7
	04/19/01	**5.7**	<0.25	**0.60**	NA	<0.25	6.3
	09/27/01	**7.5**	<0.25	**0.62**	<0.25	NA	8.12
MW-2005	04/17/02	**9.8**	<0.25	**0.89**	<0.25	NA	10.69
	06/20/03	**6.0**	<0.50	**0.87**	<0.25	NA	6.87
MW-2005	09/20/04	**17**	<0.50	**1.3**	NA	<0.20	18.3
MW-2005R	07/30/07	**2.8**	<0.50	<0.20	<0.25	<0.20	2.8
	08/18/08	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/27/09	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/13/10	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/20/11	<0.50	<0.50	<0.20	<0.25	<0.20	0
	07/10/12	<0.17	<0.20	<0.19	<0.28	<0.10	0
MW-2005R	07/24/13	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/29/14	**2.9**	<0.20	<0.19	<0.28	<0.10	2.9
MW-2005R	07/14/15	<0.17	<0.20	<0.19	<0.28	<0.10	0

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
MW-2005R	07/28/16	**2.4**	<0.38	<0.16	<0.35	<0.20	2.4
	07/12/17	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2005R	07/30/18	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/17/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/22/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2005R	07/21/21	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/19/22	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2005R	07/20/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
MW-2011	07/30/07	<0.50	**2.9**	**30**	<0.25	<0.20	32.9
	08/18/08	<0.50	**2.0**	**12**	<0.25	<0.20	14
MW-2011	07/27/09	<0.50	**1.5**	**14**	<0.25	<0.20	15.5
	07/13/10	<0.50	**2.8**	**13**	<0.25	<0.20	15.8
MW-2011	07/20/11	<0.50	**2.7**	**20**	<0.25	<0.20	22.7
	07/10/12	<0.17	**3.4**	**39**	<0.28	<0.10	42.4
	07/24/13	<0.17	**2.3**	**9.0**	<0.28	<0.10	11.3
MW-2011	07/29/14	<0.17	**4.1**	**35**	<0.28	<0.10	39.1
	07/14/15	<0.17	<0.20	**7.2**	<0.28	<0.10	7.2
	07/28/16	<0.37	**3.3**	**29**	<0.35	<0.20	32.3
	07/12/17	<0.37	**2.1**	**16**	<0.35	<0.20	18.1
MW-2011	07/30/18	<0.37	**1.2**	**7.6**	<0.35	<0.20	8.8
	07/17/19	<0.37	**2.2**	**13**	<0.35	<0.20	15.2
	07/22/20	<0.37	**2.0**	**13**	<0.35	<0.20	15
	07/21/21	<0.37	**2.0**	**14**	<0.35	<0.20	16
	07/19/22	<0.37	<0.38	**0.69**	<0.35	<0.20	0.69
MW-2011	07/20/23	<0.37	**0.71**	**3.1**	<0.35	<0.20	3.81
D-15	04/25/00	**8.7**	**0.61**	**33**	NA	<0.46	42.31
	09/28/00	**19**	**0.77**	**85**	NA	NA	104.77
D-15	04/19/01	**50**	<2.5	**470**	NA	<2.5	520
	09/27/01	**54**	<2.5	**370**	<2.5	NA	424
D-15	04/15/02	**17**	**0.47**	**62**	<2.5	NA	79.47
	11/19/02	**16**	**0.48**	**61**	<0.25	NA	77.48
	06/20/03	**11**	<0.50	**39**	<0.25	NA	50
D-15	10/20/03	**7.5**	<0.50	**29**	<0.25	NA	36.5

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
D-15	09/20/04	**18**	<0.50	**36**	NA	<0.20	54
	12/13/05	**6.8**	<0.50	**27**	<0.25	<0.20	33.8
	07/27/06	**6.8**	<0.50	**18**	NA	NA	24.8
D-15	07/31/07	**7.2**	<0.50	**16**	<0.25	<0.20	23.2
	08/18/08	**10**	<0.50	**21**	<0.25	<0.20	31
	07/27/09	**11**	<0.50	**21**	<0.25	<0.20	32
D-15	07/13/10	**47**	<0.50	**42**	<0.25	<0.20	89
	07/20/11	**7.9**	<0.50	**13**	<0.25	<0.20	20.9
	07/10/12	**6.2**	<0.20	**13**	<0.28	<0.10	19.2
	07/24/13	**8.9**	<0.20	**13**	<0.28	<0.10	21.9
D-15	07/29/14	**4.2**	<0.20	**7.7**	<0.28	<0.10	11.9
	07/14/15	**4.4**	<0.20	**8.5**	<0.28	<0.10	12.9
	07/28/16	**10**	<0.38	**13**	<0.35	<0.20	23
D-15	07/12/17	**9.8**	<0.38	**12**	<0.35	<0.20	21.8
	07/31/18	**6.3**	<0.38	**7.0**	<0.35	<0.20	13.3
	07/17/19	**8.3**	<0.38	**8.4**	<0.35	<0.20	16.7
D-15	07/22/20	**13**	<0.38	**11**	<0.35	<0.20	24
	07/21/21	**4.0**	<0.38	**4.6**	<0.35	<0.20	8.6
	07/19/22	**3.0**	<0.38	**4.4**	<0.35	<0.20	7.4
D-15	07/20/23	**5.9**	<0.38	**6.0**	<0.35	<0.20	11.9
TW-1	09/26/00	**1.1**	**0.81**	**7.3**	NA	NA	9.21
TW-1	09/28/01	<0.25	<0.25	**1.2**	<0.25	NA	1.2
	12/13/05	<0.50	<0.50	**0.22**	<0.25	<0.20	0.22
TW-1	12/13/05	<0.50	<0.50	**0.22**	<0.25	<0.20	0.22
TW-1	07/29/06	<0.50	<0.50	**0.20**	NA	NA	0.2
	07/31/07	<0.50	<0.50	**1.2**	<0.25	<0.20	1.2
TW-1	08/19/08	**0.53**	<0.50	**0.62**	<0.25	<0.20	1.15
	07/28/09	<0.50	<0.50	**0.27**	<0.25	<0.20	0.27
TW-1	07/13/10	<0.50	<0.50	**0.38**	<0.25	<0.20	0.38
	07/20/11	<0.50	<0.50	**0.28**	<0.25	<0.20	0.28
	07/10/12	<0.17	<0.20	**0.31**	<0.28	<0.10	0.31
TW-1	07/24/13	<0.17	<0.20	<0.19	<0.28	<0.10	0
TW-1	07/29/14	<0.17	<0.20	<0.19	<0.28	<0.10	0

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
TW-1	07/14/15	<0.17	<0.20	<0.19	<0.28	<0.10	0
	07/28/16	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/12/17	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/30/18	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/17/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/22/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
TW-1	07/21/21	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/19/22	<0.37	<0.38	<0.16	<0.35	<0.20	0
	02/01/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
	05/18/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
TW-1	07/20/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
TW-1	11/01/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
TW-3	04/25/00	**1.2**	**0.74**	**1.9**	NA	<0.46	3.84
	09/25/00	**1.5**	**0.72**	**3.0**	NA	NA	5.22
	04/19/01	**2.7**	**0.68**	**6.0**	NA	<0.25	9.38
TW-3	09/27/01	**7.5**	**1.3**	**21.0**	<0.25	NA	29.8
TW-3	04/16/02	**2.1**	**0.40**	**3.2**	<0.25	NA	5.7
	11/19/02	**4.0**	**0.53**	**7.8**	<0.25	NA	12.33
	06/24/03	**2.5**	<0.50	**2.6**	<0.25	NA	5.1
TW-3	10/20/03	**2.8**	<0.50	**2.0**	<0.25	NA	4.8
	09/20/04	**2.8**	<0.50	**2.8**	NA	<0.20	5.6
	12/13/05	**1.7**	<0.50	**1.6**	<0.25	<0.20	3.3
TW-3	07/27/06	**1.4**	<0.50	**1.2**	NA	NA	2.6
	07/31/07	**0.97**	<0.50	**0.94**	<0.25	<0.20	1.91
	08/20/08	**1.5**	<0.50	**0.79**	<0.25	<0.20	2.29
TW-3	07/27/09	**1.8**	<0.50	**0.86**	<0.25	<0.20	2.66
	07/13/10	**3.1**	<0.50	**4.9**	<0.25	<0.20	8
	07/20/11	**1.5**	<0.50	**0.63**	<0.25	<0.20	2.13
TW-3	07/10/12	**2.7**	<0.20	**1.1**	<0.28	<0.10	3.8
	07/24/13	**1.3**	<0.20	**0.61**	<0.28	<0.10	1.91
TW-3	07/29/14	**0.63**	<0.20	**0.38**	<0.28	<0.10	1.01
	07/14/15	<0.17	<0.20	**0.64**	<0.28	<0.10	0.64
TW-3	07/28/16	**0.54**	<0.38	**0.29**	<0.35	<0.20	0.83

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
TW-3	07/12/17	**0.59**	<0.38	<0.16	<0.35	<0.20	0.59
TW-3	07/30/18	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/17/19	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/22/20	**0.91**	<0.38	<0.16	<0.35	<0.20	0.91
	07/21/21	**0.85**	<0.38	**0.26**	<0.35	<0.20	1.11
TW-3	07/19/22	**0.43**	<0.38	**0.23**	<0.35	<0.20	0.66
	02/01/23	**0.46**	<0.38	**0.41**	<0.35	<0.20	0.87
	05/18/23	**0.38**	<0.38	<0.16	<0.35	<0.20	0.38
	07/20/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
TW-3	11/01/23	<0.37	<0.38	<0.16	<0.35	<0.20	0
EX-1	09/26/00	**3.0**	**0.39**	**11**	NA	NA	14.39
	10/02/01	**7.1**	<0.25	**27**	<0.25	NA	34.1
	09/21/04	**3.8**	<0.50	**4.2**	NA	<0.20	8
	12/14/05	**1.4**	<0.50	**1.4**	<0.25	<0.20	2.8
EX-1	07/31/06	**1.4**	<0.50	**1.5**	NA	NA	2.9
	07/31/07	**1.3**	<0.50	**0.84**	<0.25	<0.20	2.14
	08/20/08	**1.1**	<0.50	**0.75**	<0.25	<0.20	1.85
	07/14/10	**1.7**	<0.50	**3.1**	<0.25	<0.20	4.8
	07/21/11	**1.1**	<0.50	**1.0**	<0.25	<0.20	2.1
	07/11/12	**1.3**	<0.20	**1.2**	<0.28	<0.10	2.5
EX-1	07/24/13	**0.89**	<0.20	**0.47**	<0.28	<0.10	1.36
EX-1	07/30/14	**0.71**	<0.20	**0.42**	<0.28	<0.10	1.13
	07/15/15	<0.17	<0.20	<0.19	<0.28	<0.10	0
EX-1	07/28/16	**0.72**	<0.38	<0.16	<0.35	<0.20	0.72
	07/13/17	<0.37	<0.38	<0.16	<0.35	<0.20	0
	07/31/18	**0.60**	<0.38	**0.30**	<0.35	<0.20	0.9
	07/18/19	**0.53**	<0.38	**0.30**	<0.35	<0.20	0.83
	07/23/20	<0.37	<0.38	<0.16	<0.35	<0.20	0
EX-1	07/22/21	<0.37	<0.38	**0.31**	<0.35	<0.20	0.31
EX-7	04/18/00	**77**	**0.87**	**150**	NA	<0.46	227.87
	09/26/00	**56**	<0.56	**140**	NA	NA	196
EX-7	04/19/01	**56**	<1.0	**110**	NA	<1.0	166
	04/16/02	**19**	<0.25	**35**	NA	<1.0	54

Table 1. Summary of Target Compound List VOCs Groundwater Monitoring Analytical Results for Pentair Delavan Facility Monitoring Points, 2000 - 2023

SAMPLE ID	DATE	PCE	1,1,1-TCA	TCE	1,1,2-TCA	Vinyl Chloride	**Total VOCs**
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NR 140 ES		5.0	200	5	5	0.2	
NR 140 PAL		0.5	40	0.5	0.5	0.02	
	11/19/02	**26**	**0.40**	**58**	<0.25	NA	84.4
EX-7	06/24/03	**20**	<0.50	**26**	<0.25	NA	46
	10/20/03	<0.50	<0.50	**30**	<0.25	NA	30
	09/21/04	**25**	<0.50	**36**	NA	<0.20	61
	12/14/05	**14**	<0.50	**29**	<0.25	<0.20	43
EX-7	07/31/06	**14**	<0.50	**22**	NA	NA	36
	07/31/07	**9.0**	<0.50	**10**	<0.25	<0.20	19
	08/20/08	**6.2**	<0.50	**7.5**	<0.25	<0.20	13.7
	07/29/09	**7.5**	<0.50	**9.3**	<0.25	<0.20	16.8
	07/15/10	**98**	<0.50	**130**	<0.25	<0.20	228
	07/21/11	**7.8**	<0.50	**8.6**	<0.25	<0.20	16.4
	07/11/12	**7.0**	<0.20	<0.19	<0.28	<0.10	7
	07/24/13	**5.6**	<0.20	**3.9**	<0.28	<0.10	9.5
EX-7	07/30/14	**6.4**	<0.20	**4.6**	<0.28	<0.10	11
EX-7	07/15/15	**8.8**	<0.20	**6.4**	<0.28	<0.10	15.2
EX-7	07/28/16	**6.5**	<0.38	**3.4**	<0.35	<0.20	9.9
EX-7R	10/24/17	**7.3**	<0.38	**3.8**	<0.35	<0.20	11.1
	07/31/18	**4.7**	<0.38	**2.4**	<0.35	<0.20	7.1
	07/18/19	**5.4**	<0.38	**2.4**	<0.35	<0.20	7.8
EX-7R	07/23/20	**5.0**	<0.38	**2.6**	<0.35	<0.20	7.6
	07/22/21	**3.2**	<0.38	**1.8**	<0.35	<0.20	5
	07/20/22	**4.8**	<0.38	**2.1**	<0.35	<0.20	6.9
EX-7R	07/21/23	**3.5**	<0.38	<0.16	<0.35	<0.20	3.5

Notes:
VOCs = Volatile Organic Compounds
ug/L = micrograms parts per liter, which is equivalent to parts per billion (ppb).
ES = Enforcement Standard, PAL = Preventative Action Limit
Orange Highlight = above ES, Yellow Highlight = above PAL
PCE = Tetrachloroethene
TCA = Trichloroethane TCE = Trichloroethene

ATTACHMENT A
TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALSYIS FORM

TETRA TECH FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM

PROJECT INFORMATION		INSTRUMENTS	
PROJECT		Temp. & pH	
PROJECT NO.		Conductivity	
LOCATION		ORP	
PERSONNEL		DO	

SAMPLE POINT ID					
WATER TYPE					
DATE (month/day/year)					
CLOCK TIME (Military)					
DEPTH TO WATER (ft)*					
MEASURED WELL DEPTH (ft)*					
CASING VOLUME (gallons)					
PURGE VOLUME (gallons)					
DEPTH SAMPLE TAKEN (ft)*					
SAMPLING DEVICE					
FIELD TEMPERATURE (^{O}C)					
pH					
ELEC. COND. (uS/cm) Measured					
ELEC. COND. (uS/cm) at 25° C					
ORP (mV)					
DISSOLVED OXYGEN (ppm)					
DISSOLVED OXYGEN (% Sat.)					
COLOR					
ODOR					
CLARITY					
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
NAME OF LABORATORY					
DATE SENT TO LAB					
SAMPLER'S NAME					

*Measured from top of well casing.