

**From:** Kloczko, Nathan F - DHS  
**Sent:** Friday, September 10, 2021 9:29 AM  
**To:** Beggs, Tauren R - DNR  
**Subject:** RE: Former Newton Gravel Pit, DRAFT Hazard Index (HI) Calculations (BRRTS 02-36-000268)

Thanks for sending this over. I confirmed the data on our end, I saw no HI exceedances that weren't also associated with a ES exceedance. I wanted to note one thing as I was going through—in the spreadsheet, columns HX-HZ are listed for 2832 S 15<sup>th</sup>, but the associated lab report is for 2732 S 15<sup>th</sup>.

Thanks,  
Nathan

Nathan Kloczko, MPH  
(he, him, his)  
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**From:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Sent:** Friday, September 10, 2021 8:27 AM  
**To:** Kloczko, Nathan F - DHS <[nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)>; Hedman, Curtis J - DHS <[Curtis.Hedman@dhs.wisconsin.gov](mailto:Curtis.Hedman@dhs.wisconsin.gov)>; Nobile, Trevor W - DNR <[Trevor.Nobile@wisconsin.gov](mailto:Trevor.Nobile@wisconsin.gov)>; Chronert, Roxanne N - DNR <[Roxanne.Chronert@wisconsin.gov](mailto:Roxanne.Chronert@wisconsin.gov)>; Burton, Kyle - DNR <[Kyle.Burton@wisconsin.gov](mailto:Kyle.Burton@wisconsin.gov)>; Kasdorf, James H Jr - DNR <[James.KasdorfJr@wisconsin.gov](mailto:James.KasdorfJr@wisconsin.gov)>  
**Subject:** FW: Former Newton Gravel Pit, DRAFT Hazard Index (HI) Calculations (BRRTS 02-36-000268)  
**Importance:** High

Good morning,

I just received the HI calculations from AECOM, so forwarding on to everyone.

Regards,

**We are committed to service excellence.**

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Tauren R. Beggs**

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[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

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**From:** Henderson, Dave <[Dave.Henderson@aecom.com](mailto:Dave.Henderson@aecom.com)>  
**Sent:** Friday, September 10, 2021 8:18 AM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>; GravelPit <[GravelPit@manitowoc.org](mailto:GravelPit@manitowoc.org)>  
**Subject:** Former Newton Gravel Pit, DRAFT Hazard Index (HI) Calculations (BRRTS 02-36-000268)

Tauren,

Attached are the DRAFT proposed Hazard Quotient (HQ) and proposed Hazard Index (HI) calculations for the potable well PFAS results associated with the Former Newton Pit project (BRRTS No. 02-36-000268).

The assessment of cumulative risk of PFAS compounds was calculated based on the Department of Health Services (DHS) November 17, 2020 letter recommendations.

I've provided the calculations in two data tables with yellow highlight showing those compounds with proposed HI standards as follows:

1. *DRAFT HI Table 3 PW 2020-06 PFAS.pdf*

The potable well PFAS data in this table was originally reported to the WDNR in AECOM's *June 2020 VOC Semi-Annual and PFAS Potable Well Monitoring Letter Report*, dated December 30, 2020. HQ and HI calculations were not originally included with the report data presentation. I've revisited the data and added the HQ/HI calculations for your review.

2. *DRAFT HI Table X PW May June 2021 PFAS Data.pdf*

The potable well PFAS data in this table has been provided to the WDNR but not published in a report. I have not entered the PFAS data into the formal project data-base since we are waiting for the last two lab results from our sampling effort. Therefore, the table is truly a draft presentation of the data with only detects hand entered into the table to facilitate the HQ/HI calculation.

A review of the proposed HQ/HI calculation results indicates that the mixture of PFAS compounds present in the data set does not present a cumulative risk, as identified by a proposed HI >1.0, that is not already identified by exceedances of the proposed PFAS Enforcement Standards.

Let me know if you have any questions.

Thanks  
dsh

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**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: Sample Date: Field Sample ID:					2823 S 15th 5/24/2021	HQ	2908 S 15TH 5/24/2021	HQ	2917 S 19TH 5/24/2021	HQ	3011 S 19TH 5/24/2021	HQ	3019 S 19TH 5/24/2021	HQ	3126 S 15TH 5/24/2021	HQ
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000												
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>				4.23			1.55					
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>												
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	2.98		18.6		62.1		18.6		7.54		5.15	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	2.98	0.15	18.60	0.93	66.33	3.32	20.15		7.54	0.38	5.15	0.26
						HI 0.15		HI 0.93		HI 3.32		HI 0.00		HI 0.38		HI 0.26

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
 -- No NR 140 ES or PAL established.  
 NA = Not analyzed

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**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

					Location: 3911 Black Hawk Ct	127 Thunder Rdg R	2911 CTH CR	3322 CTH CR	3422 CTH CR	3533 CTH CR						
					Sample Date: 5/24/2021	5/24/2021	5/24/2021	5/24/2021	5/24/2021	5/24/2021						
					Field Sample ID:	HQ	HQ	HQ	HQ	HQ						
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000			0.829	0.00	4.51	0.00		11.3	0.00			
PFPeA	2706-90-3	ng/L	--	--								3.1				
PFHxA	307-24-4	ng/L	150,000	30,000								2.95	0.00			
PFHpA	375-85-9	ng/L	--	--								3.65				
PFOA	335-67-1	ng/L	20 c	2 <sup>c</sup>	1.2		1.9		<b>2.73</b>			<b>12</b>				
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000								3.04	0.00			
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4				1.75	0.04			3.29	0.08			
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20 c	2 <sup>c</sup>				1.4				<b>4.38</b>				
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20 c	2 <sup>c</sup>	<b>13.4</b>		<b>23.6</b>		<b>33.1</b>		<b>5.62</b>	<b>3.8</b>	<b>9.13</b>			
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20 c	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20 c	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20 c	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20 c	2 <sup>c</sup>	<b>14.60</b>	0.73	<b>25.50</b>	1.28	<b>37.23</b>	1.86	<b>5.62</b>	0.28	<b>3.80</b>	0.19	<b>25.51</b>	1.28
					HI	0.73	HI	1.28	HI	1.91	HI	0.28	HI	0.19	HI	1.36

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
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 J - Estimated value (+/- indicates bias)  
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 UJ - Estimated limit of detection (LOD)  
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 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
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 -- No NR 140 ES or PAL established.  
 NA = Not analyzed

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**MANITOWOC, WISCONSIN**

					Location:	3627 CTH CR	HQ	3625 Hecker Rd	HQ	4004 Silver Crk	HQ	4141 Viebahn St	HQ	3121 Hecker Rd	HI	3131 S 15th	HQ
					Sample Date:	5/24/2021		5/24/2021		5/24/2021		5/24/2021		5/24/2021		5/24/2021	
					Field Sample ID:												
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)													
PFBA	375-22-4	ng/L	10,000	2,000													
PFPeA	2706-90-3	ng/L	--	--													
PFHxA	307-24-4	ng/L	150,000	30,000													
PFHpA	375-85-9	ng/L	--	--													
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>													
PFNA	375-95-1	ng/L	30	3													
PFDA	335-76-2	ng/L	300	60													
PFUnA	2058-94-8	ng/L	3,000	600													
PFDoA	307-55-1	ng/L	500	100													
PFTTrDA	72629-94-8	ng/L	--	--													
PFTeDA	376-06-7	ng/L	10,000	2,000													
PFHxDA	67905-19-5	ng/L	--	--													
PFODA	16517-11-6	ng/L	400,000	80,000													
PFBS	375-73-5	ng/L	450,000	90,000													
PFPeS	2706-91-4	ng/L	--	--													
PFHxS	355-46-4	ng/L	40	4													
PFHpS	375-92-8	ng/L	--	--													
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>													
PFNS	68259-12-1	ng/L	--	--													
PFDS	335-77-3	ng/L	--	--													
PFDoS	79780-39-5	ng/L	--	--													
4:2 FTS	757124-72-4	ng/L	--	--													
6:2 FTS	27619-97-2	ng/L	--	--													
8:2 FTS	39108-34-4	ng/L	--	--													
10:2 FTS	120226-60-0	ng/L	--	--													
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>			6.72	9.68		11.7		3.87		6.24			
NMeFOSA	31506-32-8	ng/L	--	--													
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>													
MeFOSAA	2355-31-9	ng/L	--	--													
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>													
NMeFOSE	24448-09-7	ng/L	--	--													
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>													
GenX	13252-13-6	ng/L	300	30													
DONA	919005-14-4	ng/L	3,000	600													
F-53B Major	756426-58-1	ng/L	--	--													
F-53B Minor	763051-92-9	ng/L	--	--													
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	0.00	0.00	6.72	0.34	9.68	0.48	11.70	0.59	3.87	0.19	6.24	0.31	
					hi	0.00	HI	0.34	HI	0.48	HI	0.59	HI	0.19	HI	0.31	

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
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 Bold indicates a PAL exceedance, proposed.  
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**FORMER TOWN OF NEWTON GRAVEL PIT**  
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Location:					2820 S 15th St	HQ	3327 Hecker Rd	HQ	3702 Hecker Rd	HQ	3817 Viebahn St	HQ	4101 Thunder Rdg	HQ	3720 Hecker Rd	HQ
Sample Date:					5/24/2021		5/25/2021		5/25/2021		5/24/2021		5/24/2021		5/25/2021	
Field Sample ID:																
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000			1.38	0.00					1.25	0.00		
PFPeA	2706-90-3	ng/L	--	--									1.05			
PFHxA	307-24-4	ng/L	150,000	30,000			1.38	0.00								
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	1.83		2.37						2.7			
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>												
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<u>20</u>		3.75		6.99		10.5		<u>51</u>		7.94	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<u>21.83</u>	1.09	6.12	0.31	6.99	0.35	10.50	0.53	<u>53.70</u>	2.69	7.94	
					HI	1.09	HI	0.31	HI	0.35	HI	0.53	HI	2.69	HI	0.00

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
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**MANITOWOC, WISCONSIN**

Location: Sample Date: Field Sample ID:					4219 Viebahn St 5/26/2021	HQ	3303 Hecker Rd 5/26/2021	HQ	3027 S 15th 5/26/2021	HQ	3028 S 15th 5/26/2021	HQ	2827 S 15th 5/25/2021	HQ	3921 Black Hawk Ct 5/25/2021	HQ
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000											1.45	0.00
PFPeA	2706-90-3	ng/L	--	--											1.13	
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>									2.45		1.86	
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>												
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>3.03</b>		<b>2.97</b>		<b>4.75</b>		<b>2.03</b>		<b>40.1</b>		<b>26.1</b>	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>3.03</b>	0.15	<b>2.97</b>	0.15	<b>4.75</b>	0.24	<b>2.03</b>	0.10	<b>42.55</b>	2.13	<b>27.96</b>	1.40
					HI	0.15	HI	0.15	HI	0.24	HI	0.10	HI	2.13	HI	1.40

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
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 NA = Not analyzed

**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location:					3611 CTH CR	HQ	3515 Hecker Rd	HQ	3518 Hecker Rd	HQ	3114 Hecker Rd	HQ	3027 Orchard Ln	HQ	3412 CTH CR	HQ	
Sample Date:					5/25/2021		5/25/2021		5/25/2021		5/25/2021		5/25/2021		5/25/2021		
Field Sample ID:																	
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)													
PFBA	375-22-4	ng/L	10,000	2,000	3.72	0.00											
PFPeA	2706-90-3	ng/L	--	--	1.17												
PFHxA	307-24-4	ng/L	150,000	30,000	1.29	0.00											
PFHpA	375-85-9	ng/L	--	--													
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	<b>6</b>												
PFNA	375-95-1	ng/L	30	3													
PFDA	335-76-2	ng/L	300	60													
PFUnA	2058-94-8	ng/L	3,000	600													
PFDoA	307-55-1	ng/L	500	100													
PFTrDA	72629-94-8	ng/L	--	--													
PFTeDA	376-06-7	ng/L	10,000	2,000													
PFHxDA	67905-19-5	ng/L	--	--													
PFODA	16517-11-6	ng/L	400,000	80,000													
PFBS	375-73-5	ng/L	450,000	90,000	2.99	0.00											
PFPeS	2706-91-4	ng/L	--	--													
PFHxS	355-46-4	ng/L	40	4	2.76	0.07											
PFHpS	375-92-8	ng/L	--	--													
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	<b>16.5</b>												
PFNS	68259-12-1	ng/L	--	--													
PFDS	335-77-3	ng/L	--	--													
PFDoS	79780-39-5	ng/L	--	--													
4:2 FTS	757124-72-4	ng/L	--	--													
6:2 FTS	27619-97-2	ng/L	--	--													
8:2 FTS	39108-34-4	ng/L	--	--													
10:2 FTS	120226-60-0	ng/L	--	--													
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>12.7</b>		<b>6.29</b>		<b>5.35</b>		<b>3.13</b>		<b>4.88</b>		<b>6.84</b>		
NMeFOSA	31506-32-8	ng/L	--	--													
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>													
MeFOSAA	2355-31-9	ng/L	--	--													
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>													
NMeFOSE	24448-09-7	ng/L	--	--													
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>													
GenX	13252-13-6	ng/L	300	30													
DONA	919005-14-4	ng/L	3,000	600													
F-53B Major	756426-58-1	ng/L	--	--													
F-53B Minor	763051-92-9	ng/L	--	--													
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>35.20</b>	1.76	<b>6.29</b>		<b>5.35</b>	0.27	<b>3.13</b>	0.16	<b>4.88</b>	0.24	<b>6.84</b>	0.34	
						HI	1.83			hi	0.27		HI	0.16		HI	0.34

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
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 NA = Not analyzed



**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: 4027 Thunder Rdg Sample Date: 5/26/2021 Field Sample ID:					HI	2834 S 15th 5/26/2021	HQ	4314 Silver Crk 5/26/2021	HQ	3609 Hecker Rd 5/27/2021	HQ	5202 Silver Crk 5/27/2021	HQ	3825 Viebahn St 5/27/2021	HQ	
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000	1.43	0.00		1.35	0.00							
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000	1.51	0.00										
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>			1.28									
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000	0.792	0.00		1.79	0.00							
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>												
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	3.61		3.02	18.9		10.2		1.54		3.56		
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	3.61	0.18	3.02	20.18	1.01	10.20	0.51	1.54	0.08	3.56	0.18	
					HI	0.18	HI	0.15	HI	1.01	HI	0.51	HI	0.08	HI	0.18

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
 -- No NR 140 ES or PAL established.  
 NA = Not analyzed

**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: Sample Date: Field Sample ID:					3403 CTH CR 5/28/2021	HQ	4010 Thunder Rdg 5/28/2021	HQ	2912 S 15th 5/28/2021	HQ	4315 Silver Crk 5/28/2021	HQ	3120 CTH CR 5/28/2021	HQ	4751 Silver Crk 5/28/2021	HQ	
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)													
PFBA	375-22-4	ng/L	10,000	2,000													
PFPeA	2706-90-3	ng/L	--	--													
PFHxA	307-24-4	ng/L	150,000	30,000													
PFHpA	375-85-9	ng/L	--	--													
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>													
PFNA	375-95-1	ng/L	30	3													
PFDA	335-76-2	ng/L	300	60													
PFUnA	2058-94-8	ng/L	3,000	600													
PFDoA	307-55-1	ng/L	500	100													
PFTTrDA	72629-94-8	ng/L	--	--													
PFTeDA	376-06-7	ng/L	10,000	2,000													
PFHxDA	67905-19-5	ng/L	--	--													
PFODA	16517-11-6	ng/L	400,000	80,000													
PFBS	375-73-5	ng/L	450,000	90,000													
PFPeS	2706-91-4	ng/L	--	--													
PFHxS	355-46-4	ng/L	40	4													
PFHpS	375-92-8	ng/L	--	--													
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>													
PFNS	68259-12-1	ng/L	--	--													
PFDS	335-77-3	ng/L	--	--													
PFDoS	79780-39-5	ng/L	--	--													
4:2 FTS	757124-72-4	ng/L	--	--													
6:2 FTS	27619-97-2	ng/L	--	--													
8:2 FTS	39108-34-4	ng/L	--	--													
10:2 FTS	120226-60-0	ng/L	--	--													
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>6.3</b>		<b>2.73</b>		<b>4.24</b>		<b>6.99</b>		1.36		<b>5.97</b>		
NMeFOSA	31506-32-8	ng/L	--	--													
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>													
MeFOSAA	2355-31-9	ng/L	--	--													
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>													
NMeFOSE	24448-09-7	ng/L	--	--													
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>													
GenX	13252-13-6	ng/L	300	30													
DONA	919005-14-4	ng/L	3,000	600													
F-53B Major	756426-58-1	ng/L	--	--													
F-53B Minor	763051-92-9	ng/L	--	--													
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>6.30</b>	0.32	<b>2.73</b>		<b>4.24</b>	0.21	<b>6.99</b>	0.35	1.36	0.07	<b>5.97</b>	0.30	
						HI	0.32			HI	0.21			HI	0.07		
							HI	0.00			HI	0.35		HI	0.07	HI	0.30

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
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 NA = Not analyzed

**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location:					3504 CTH CR	HQ	3626 CTH CR	HQ	2201 Elm Rd	HQ	2925 Fricke Dr	HQ	5107 Viebahn St	HQ	4156 Silver Crk	HQ
Sample Date:					5/28/2021		5/28/2021		6/1/2021		6/1/2021		6/1/2021		6/1/2021	
Field Sample ID:																
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000							1				0.765	0.00
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>			1.23				2.09					
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>							2.12					
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	2.51		13.3		9.73		36		2.26		12.4	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	2.51	0.13	14.53	0.73	9.73	0.49	40.21		2.26	0.11	12.40	0.62
						HI		HI		HI		HI		hi		HI

Note:  
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 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
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 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
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**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location:					2918 S 19th	HQ	3523 CTH CR	HQ	2832 S 15th	HI	2706 CTH CR	HQ	4159 Silver Crk	HQ	2824 S 19th	HQ
Sample Date:					6/1/2021		6/1/2021		6/1/2021		6/1/2021		6/1/2021		6/2/2021	
Field Sample ID:																
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000									0.885	0.00		
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--	1.24											
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	<b>13.9</b>		<b>3.38</b>		<b>2.27</b>		1.91				<b>2.53</b>	
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	<b>2.23</b>		<b>3.92</b>									
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>132</b>		<b>39.6</b>		<b>29.9</b>		<b>25.6</b>		<b>3.8</b>		<b>30.6</b>	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>148.13</b>	7.41	<b>46.90</b>	2.35	<b>32.17</b>	1.61	<b>27.51</b>	1.38	<b>3.80</b>	0.19	<b>33.13</b>	1.66
						HI 7.41		HI 2.35		HI 1.61		HI 1.38		HI 0.19		HI 1.66

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
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 NA = Not analyzed

**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: 3320 Hecker Rd Sample Date: 6/1/2021 Field Sample ID:					HQ	3008 S 19th 6/2/2021	HQ	3224 CTH CR 6/2/2021	HQ	461(3417) Hecker R 6/2/2021	HQ	4002 Thunder Rdg 6/2/2021	HQ	3609 M&M 6/2/2021	HQ	
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000						1.99	0.00					
PFPeA	2706-90-3	ng/L	--	--						1.87						
PFHxA	307-24-4	ng/L	150,000	30,000						2.75	0.00					
PFHpA	375-85-9	ng/L	--	--						2.29						
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>			4.26			19						
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000						1.26	0.00					
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>			1.03			2.71						
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	5.06		66	12.3		199		13		10		
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	5.06	0.25	71.29	3.56	12.30	0.62	220.71	11.0	13.00	0.65	10.00	0.50
						HI 0.25		HI 3.56		HI 0.62		HI 11.0		HI 0.65		HI 0.50

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
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 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
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 NA = Not analyzed

**TABLE X**  
**DRAFT HQ HI CALCULATIONS**  
**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: Sample Date: Field Sample ID:					3217 S 15th 6/2/2021	HQ	4904 Silver Crk 6/2/2021	HQ	4101 CTH CR 6/3/2021	HQ	4125 CTH CR 6/3/2021	HQ	3312 CTH CR 6/3/2021	HQ	4111 Thunder Rdg 6/3/2021	HQ
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000			1.41	0.00							0.961	0.00
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	<b>3.4</b>		1.72		<b>4.26</b>		<b>5.39</b>				1.72	
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000												
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>					1.48				1.1			
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>58.4</b>		<b>28.4</b>		<b>75</b>		<b>63.8</b>		<b>13.2</b>		<b>24.1</b>	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>61.80</b>	3.09	<b>30.12</b>	1.51	<b>80.74</b>	4.04	<b>69.19</b>	3.46	<b>14.30</b>	0.72	<b>25.82</b>	1.29
					HI	3.09	HI	1.51	HI	4.04	HI	3.46	HI	0.72	HI	1.29

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
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 J - Estimated value (+/- indicates bias)  
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**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Location: Sample Date: Field Sample ID:					4747 Silver Crk 6/3/2021	HQ	4752 Silver Crk 6/4/2021	HQ	4212 Silver Crk 6/4/2021	HQ	2716 CTH CR 6/4/2021	HQ	3902 Silver Crk 6/4/2021	HI	4005 Thunder Rdg 6/4/2021	HQ
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)												
PFBA	375-22-4	ng/L	10,000	2,000			1.48		1.86	0.00						
PFPeA	2706-90-3	ng/L	--	--												
PFHxA	307-24-4	ng/L	150,000	30,000												
PFHpA	375-85-9	ng/L	--	--												
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	<b>5.56</b>		<b>3.25</b>				<b>4.68</b>				1.23	
PFNA	375-95-1	ng/L	30	3												
PFDA	335-76-2	ng/L	300	60												
PFUnA	2058-94-8	ng/L	3,000	600												
PFDoA	307-55-1	ng/L	500	100												
PFTrDA	72629-94-8	ng/L	--	--												
PFTeDA	376-06-7	ng/L	10,000	2,000												
PFHxDA	67905-19-5	ng/L	--	--												
PFODA	16517-11-6	ng/L	400,000	80,000												
PFBS	375-73-5	ng/L	450,000	90,000				1.48		0.00						
PFPeS	2706-91-4	ng/L	--	--												
PFHxS	355-46-4	ng/L	40	4												
PFHpS	375-92-8	ng/L	--	--												
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	1.97		1.05				1.79					
PFNS	68259-12-1	ng/L	--	--												
PFDS	335-77-3	ng/L	--	--												
PFDoS	79780-39-5	ng/L	--	--												
4:2 FTS	757124-72-4	ng/L	--	--												
6:2 FTS	27619-97-2	ng/L	--	--												
8:2 FTS	39108-34-4	ng/L	--	--												
10:2 FTS	120226-60-0	ng/L	--	--												
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	<b>95</b>		<b>51</b>		<b>17.2</b>		<b>60.6</b>		<b>6.82</b>		<b>18.9</b>	
NMeFOSA	31506-32-8	ng/L	--	--												
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>												
MeFOSAA	2355-31-9	ng/L	--	--												
EtFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>												
NMeFOSE	24448-09-7	ng/L	--	--												
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>												
GenX	13252-13-6	ng/L	300	30												
DONA	919005-14-4	ng/L	3,000	600												
F-53B Major	756426-58-1	ng/L	--	--												
F-53B Minor	763051-92-9	ng/L	--	--												
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	<b>102.53</b>	5.13	<b>55.30</b>	2.77	<b>17.20</b>	0.86	<b>67.07</b>	3.35	<b>6.82</b>	0.34	<b>20.13</b>	1.01
					hi	5.13	HI	2.77	HI	0.86	HI	3.35	HI	0.34	HI	1.01

Note:  
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**DRAFT - SUMMARY OF DETECTED PFAS IN POTABLE WELLS**  
**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

					Location:	3123 S 19th	HQ	22911 S 15th	HQ
					Sample Date:	8/19/2021		8/19/2021	
					Field Sample ID:				
Abbr	Cas Number	Units	ES (proposed)	PAL (proposed)					
PFBA	375-22-4	ng/L	10,000	2,000					
PFPeA	2706-90-3	ng/L	--	--					
PFHxA	307-24-4	ng/L	150,000	30,000					
PFHpA	375-85-9	ng/L	--	--					
PFOA	335-67-1	ng/L	20 c	2 <sup>c</sup>					
PFNA	375-95-1	ng/L	30	3					
PFDA	335-76-2	ng/L	300	60					
PFUnA	2058-94-8	ng/L	3,000	600					
PFDoA	307-55-1	ng/L	500	100					
PFTTrDA	72629-94-8	ng/L	--	--					
PFTeDA	376-06-7	ng/L	10,000	2,000					
PFHxDA	67905-19-5	ng/L	--	--					
PFODA	16517-11-6	ng/L	400,000	80,000					
PFBS	375-73-5	ng/L	450,000	90,000					
PFPeS	2706-91-4	ng/L	--	--					
PFHxS	355-46-4	ng/L	40	4					
PFHpS	375-92-8	ng/L	--	--					
PFOS	1763-23-1	ng/L	20 c	2 <sup>c</sup>					
PFNS	68259-12-1	ng/L	--	--					
PFDS	335-77-3	ng/L	--	--					
PFDoS	79780-39-5	ng/L	--	--					
4:2 FTS	757124-72-4	ng/L	--	--					
6:2 FTS	27619-97-2	ng/L	--	--					
8:2 FTS	39108-34-4	ng/L	--	--					
10:2 FTS	120226-60-0	ng/L	--	--					
PFOSA	754-91-6	ng/L	20 c	2 <sup>c</sup>					
NMeFOSA	31506-32-8	ng/L	--	--					
NEtFOSA	4151-50-2	ng/L	20 c	2 <sup>c</sup>					
MeFOSAA	2355-31-9	ng/L	--	--					
EtFOSAA	2991-50-6	ng/L	20 c	2 <sup>c</sup>					
NMeFOSE	24448-09-7	ng/L	--	--					
NEtFOSE	1691-99-2	ng/L	20 c	2 <sup>c</sup>					
GenX	13252-13-6	ng/L	300	30					
DONA	919005-14-4	ng/L	3,000	600					
F-53B Major	756426-58-1	ng/L	--	--					
F-53B Minor	763051-92-9	ng/L	--	--					
*Combined Six	N/A	ng/L	20 c	2 <sup>c</sup>	0.00	0.00	0.00	0.00	
					HI	0.00	HI	0.00	

Note:

<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.

ng/L - nanograms per liter

J - Estimated value (+/- indicates bias)

R - Rejected

UJ - Estimated limit of detection (LOD)

HQ - Hazard Quotient as per DHS 11/17/20 letter

HI - Hazard Index as per DHS 11/17/20 letter

Non-detects reported as < LOD

Bold indicates a PAL exceedance, proposed.

Bold and underlining indicates an ES exceedance, proposed.

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NA = Not analyzed



**TABLE 3  
DRAFT HQ HI CALCULATIONS  
SUMMARY OF PFAS CONTAMINATES ANALYZED IN POTABLE WELLS  
FORMER TOWN OF NEWTON GRAVEL PIT  
MANITOWOC, WISCONSIN**

Abbr	Cas Number	Units	Location:		3114 Hecker Rd	HQ	3121 Hecker Rd	HQ	3303 Hecker Rd	HQ	3320 Hecker Rd	HQ	3327 Hecker Rd	HQ
			ES (proposed)	PAL (proposed)	6/4/2020	6/10/2020	6/4/2020	11/20/2018	11/20/2018					
					3114 HECKER		3121 HECKER		3303 HECKER		3320 HECKER		3327 HECKER	
PFBA	375-22-4	ng/L	10,000	2,000	< 4.58		< 4.45		< 4.77		NA		NA	
PFPeA	2706-90-3	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFHxA	307-24-4	ng/L	150,000	30,000	< 4.58		< 4.45		< 4.77		< 0.45		2.6	0.00
PFHpA	375-85-9	ng/L	--	--	< 4.58		< 4.45		< 4.77		< 0.45		0.75	J
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	1.05	J	< 4.45		< 4.77		< 0.45		2.5	
PFNA	375-95-1	ng/L	30	3	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFDA	335-76-2	ng/L	300	60	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFUnA	2058-94-8	ng/L	3,000	600	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFDoA	307-55-1	ng/L	500	100	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFTrDA	72629-94-8	ng/L	--	--	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFTeDA	376-06-7	ng/L	10,000	2,000	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
PFHxDA	67905-19-5	ng/L	--	--	< 4.58		< 4.45		< 4.77	UJ	NA		NA	
PFODA	16517-11-6	ng/L	400,000	80,000	< 8.02		< 7.78		< 8.34		NA		NA	
PFBS	375-73-5	ng/L	450,000	90,000	< 4.58		< 4.45		< 4.77		< 0.45		1.2	J 0.00
PFPeS	2706-91-4	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFHxS	355-46-4	ng/L	40	4	< 4.58		< 4.45		< 4.77		< 0.45		0.57	J 0.01
PFHpS	375-92-8	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	< 4.58		< 4.45		1.65	J	< 0.45		< 0.43	
PFNS	68259-12-1	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFDS	335-77-3	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFDoS	79780-39-5	ng/L	--	--	< 5.73		< 5.56		< 5.96		NA		NA	
4:2 FTS	757124-72-4	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
6:2 FTS	27619-97-2	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
8:2 FTS	39108-34-4	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
10:2 FTS	120226-60-0	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	16.2		11		2.37	J	NA		NA	
NMeFOSA	31506-32-8	ng/L	--	--	< 22.9		< 22.2		< 23.8		NA		NA	
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>	< 22.9		< 22.2		< 23.8		NA		NA	
MeFOSAA	2355-31-9	ng/L	--	--	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
EiFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>	< 4.58		< 4.45		< 4.77		< 0.45		< 0.43	
NMeFOSE	24448-09-7	ng/L	--	--	< 22.9		< 22.2		< 23.8		NA		NA	
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>	< 22.9		< 22.2		< 23.8		NA		NA	
GenX	13252-13-6	ng/L	300	30	< 5.73		< 5.56		< 5.96		NA		NA	
DONA	919005-14-4	ng/L	3,000	600	< 4.58		< 4.45		< 4.77		NA		NA	
F-53B Major	756426-58-1	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
F-53B Minor	763051-92-9	ng/L	--	--	< 4.58		< 4.45		< 4.77		NA		NA	
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	17.25	0.86	11.00	0.55	4.02	0.20	0.00		2.50	0.13
						HI 0.86		HI 0.55		HI 0.20		HI 0.00		HI 0.14

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA.  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
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 HQ - Hazard Quotient as per DHS 11/17/20 letter  
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 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
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**FORMER TOWN OF NEWTON GRAVEL PIT**  
**MANITOWOC, WISCONSIN**

Abbr	Cas Number	Units	Location: 461(3417) Hecker Rd Sample Date: 11/20/2018 Field Sample ID: 3461 HECKER		HQ	3515 Hecker Rd 6/4/2020 3515 HECKER		HQ	3518 Hecker Rd 6/4/2020 3518 HECKER		HQ	3533 CTH CR 6/10/2020 3533 CTH CR		HQ	3609 Hecker Rd 6/4/2020 3609 HECKER		HQ
			ES (proposed)	PAL (proposed)													
PFBA	375-22-4	ng/L	10,000	2,000	NA	< 4.42	< 4.38		2.74	J	0.00	< 4.6					
PFPeA	2706-90-3	ng/L	--	--	NA	< 4.42	< 4.38		< 4.72			< 4.6					
PFHxA	307-24-4	ng/L	150,000	30,000	3	0.00	< 4.42	< 4.38	< 4.72			< 4.6					
PFHpA	375-85-9	ng/L	--	--	0.57	J	< 4.42	< 4.38	< 4.72			< 4.6					
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	1.1	J	< 4.42	< 4.38	9.07			0.885	J				
PFNA	375-95-1	ng/L	30	3	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFDA	335-76-2	ng/L	300	60	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFUnA	2058-94-8	ng/L	3,000	600	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFDoA	307-55-1	ng/L	500	100	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFTrDA	72629-94-8	ng/L	--	--	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFTeDA	376-06-7	ng/L	10,000	2,000	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
PFHxDA	67905-19-5	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFODA	16517-11-6	ng/L	400,000	80,000	NA		< 7.73	< 7.66	< 8.26			< 8.05					
PFBS	375-73-5	ng/L	450,000	90,000	0.89	J	0.00	< 4.42	< 4.38	< 4.72			< 4.6				
PFPeS	2706-91-4	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFHxS	355-46-4	ng/L	40	4	< 0.44		< 4.42	< 4.38	1.79	J	0.04	< 4.6					
PFHpS	375-92-8	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	< 0.44		1.1	J	1.11	J		3.83	J	1.5	J		
PFNS	68259-12-1	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFDS	335-77-3	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFDoS	79780-39-5	ng/L	--	--	NA		< 5.52	< 5.47	< 5.9			< 5.75					
4:2 FTS	757124-72-4	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
6:2 FTS	27619-97-2	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
8:2 FTS	39108-34-4	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
10:2 FTS	120226-60-0	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	NA		3.61	J	4.42			12.3	7.23				
NMeFOSA	31506-32-8	ng/L	--	--	NA		< 22.1	< 21.9	< 23.6			< 22.6					
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>	NA		< 22.1	< 21.9	< 23.6			< 22.6					
MeFOSAA	2355-31-9	ng/L	--	--	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
EiFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>	< 0.44		< 4.42	< 4.38	< 4.72			< 4.6					
NMeFOSE	24448-09-7	ng/L	--	--	NA		< 22.1	< 21.9	< 23.6			< 23					
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>	NA		< 22.1	< 21.9	< 23.6			< 23					
GenX	13252-13-6	ng/L	300	30	NA		< 5.52	< 5.47	< 5.9			< 5.75					
DONA	919005-14-4	ng/L	3,000	600	NA		< 4.42	< 4.38	< 4.72			< 4.6					
F-53B Major	756426-58-1	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
F-53B Minor	763051-92-9	ng/L	--	--	NA		< 4.42	< 4.38	< 4.72			< 4.6					
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	1.10	0.06	4.71	0.24	5.53	0.28	25.20	1.26	9.62	0.48			
					HI	0.06	HI	0.24	HI	0.28	HI	1.31	HI	0.48			

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA  
ng/L - nanograms per liter  
J - Estimated value (+/- indicates bias)  
R - Rejected  
UJ - Estimated limit of detection (LOD)  
HQ - Hazard Quotient as per DHS 11/17/20 letter  
HI - Hazard Index as per DHS 11/17/20 letter  
Non-detects reported as < LOD  
Bold indicates a PAL exceedance, proposed.  
Bold and underlining indicates an ES exceedance, proposed.  
-- No NR 140 ES or PAL established.  
NA = Not analyzed

TABLE 3  
**DRAFT HQ HI CALCULATIONS**  
 SUMMARY OF PFAS CONTAMINATES ANALYZED IN POTABLE WELLS  
 FORMER TOWN OF NEWTON GRAVEL PIT  
 MANITOWOC, WISCONSIN

Abbr	Cas Number	Units	Location:		3625 Hecker Rd	HQ	3702 Hecker Rd	HQ	3702 Hecker Rd	3720 Hecker Rd	HQ	3817 Viebahn St	HQ	3911 Black Hawk Ct	HQ	
			ES (proposed)	PAL (proposed)	6/4/2020	Field Sample ID:	3625 HECKER	3702 HECKER	11/20/2018	3702 HECKER	11/20/2018	6/4/2020	3817 HECKER	6/4/2020	3817 VIEBAHN	6/10/2020
PFBA	375-22-4	ng/L	10,000	2,000	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFPeA	2706-90-3	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFHxA	307-24-4	ng/L	150,000	30,000	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFHpA	375-85-9	ng/L	--	--	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	< 4.36		< 0.46		< 0.44	2.23	J	1.81	J	1.02	J	
PFNA	375-95-1	ng/L	30	3	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFDA	335-76-2	ng/L	300	60	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFUnA	2058-94-8	ng/L	3,000	600	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFDoA	307-55-1	ng/L	500	100	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFTrDA	72629-94-8	ng/L	--	--	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFTeDA	376-06-7	ng/L	10,000	2,000	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFHxDA	67905-19-5	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFODa	16517-11-6	ng/L	400,000	80,000	< 7.64		NA		NA	< 7.62		< 7.93		< 7.84		
PFBS	375-73-5	ng/L	450,000	90,000	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFPeS	2706-91-4	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFHxS	355-46-4	ng/L	40	4	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
PFHpS	375-92-8	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	< 4.36		< 0.46		< 0.44	< 4.35		1.85	J	< 4.48		
PFNS	68259-12-1	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFDS	335-77-3	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFDoS	79780-39-5	ng/L	--	--	< 5.45		NA		NA	< 5.44		< 5.66		< 5.6		
4:2 FTS	757124-72-4	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
6:2 FTS	27619-97-2	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
8:2 FTS	39108-34-4	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
10:2 FTS	120226-60-0	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	9.72		NA		NA	42.4		26.6		4.51		
NMeFOSA	31506-32-8	ng/L	--	--	< 22.3		NA		NA	< 21.8	UR	< 21.8	UR	< 22.4		
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>	< 22.3		NA		NA	< 21.8	UR	< 21.8	UR	< 22.4		
MeFOSAA	2355-31-9	ng/L	--	--	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
EiFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>	< 4.36		< 0.46		< 0.44	< 4.35		< 4.53		< 4.48		
NMeFOSE	24448-09-7	ng/L	--	--	< 21.8		NA		NA	< 21.8		< 22.7		< 22.4		
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>	< 21.8		NA		NA	< 21.8		< 22.7		< 22.4		
GenX	13252-13-6	ng/L	300	30	< 5.45		NA		NA	< 5.44		< 5.66		< 5.6		
DONA	919005-14-4	ng/L	3,000	600	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
F-53B Major	756426-58-1	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
F-53B Minor	763051-92-9	ng/L	--	--	< 4.36		NA		NA	< 4.35		< 4.53		< 4.48		
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	9.72	0.49	0.00		0.00	44.63	2.23	30.26	1.51	1.02	0.05	
						HI	0.49		HI	0.00		HI	2.23		HI	0.05

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA  
 ng/L - nanograms per liter  
 J - Estimated value (+/- indicates bias)  
 R - Rejected  
 UJ - Estimated limit of detection (LOD)  
 HQ - Hazard Quotient as per DHS 11/17/20 letter  
 HI - Hazard Index as per DHS 11/17/20 letter  
 Non-detects reported as < LOD  
 Bold indicates a PAL exceedance, proposed.  
 Bold and underlining indicates an ES exceedance, proposed.  
 -- No NR 140 ES or PAL established.  
 NA = Not analyzed

**TABLE 3  
DRAFT HQ HI CALCULATIONS  
SUMMARY OF PFAS CONTAMINATES ANALYZED IN POTABLE WELLS  
FORMER TOWN OF NEWTON GRAVEL PIT  
MANITOWOC, WISCONSIN**

Abbr	Cas Number	Units	Location: 4127 Thunder R Rd Sample Date: 6/3/2020 Field Sample ID: 127 THUNDER RIDG		HI	4141 Viebahn St 6/4/2020 4141 VIEBAHN		HQ	4159 Silver Creek Rd 6/3/2020 4159 SILVER CR		HQ	4219 Viebahn St 6/10/2020 4219 VIEBAHN		HQ
			ES (proposed)	PAL (proposed)										
PFBA	375-22-4	ng/L	10,000	2,000	< 4.64	< 4.41	< 4.39	< 4.52						
PFPeA	2706-90-3	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFHxA	307-24-4	ng/L	150,000	30,000	< 4.64	< 4.41	< 4.39	< 4.52						
PFHpA	375-85-9	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFOA	335-67-1	ng/L	20	2 <sup>c</sup>	1.1	J	2.13	J	< 4.39			6.75		
PFNA	375-95-1	ng/L	30	3	< 4.64	< 4.41	< 4.39	< 4.52						
PFDA	335-76-2	ng/L	300	60	< 4.64	< 4.41	< 4.39	< 4.52						
PFUnA	2058-94-8	ng/L	3,000	600	< 4.64	< 4.41	< 4.39	< 4.52						
PFDoA	307-55-1	ng/L	500	100	< 4.64	< 4.41	< 4.39	< 4.52						
PFTrDA	72629-94-8	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFTeDA	376-06-7	ng/L	10,000	2,000	< 4.64	< 4.41	< 4.39	< 4.52						
PFHxDA	67905-19-5	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFODA	16517-11-6	ng/L	400,000	80,000	< 8.12	< 7.72	< 7.68	< 7.91						
PFBS	375-73-5	ng/L	450,000	90,000	< 4.64	< 4.41	< 4.39	< 4.52						
PFPeS	2706-91-4	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFHxS	355-46-4	ng/L	40	4	< 4.64	< 4.41	< 4.39	< 4.52						
PFHpS	375-92-8	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFOS	1763-23-1	ng/L	20	2 <sup>c</sup>	< 4.64	2.17	J	1.23	J	< 4.39		< 4.52		
PFNS	68259-12-1	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFDS	335-77-3	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFDoS	79780-39-5	ng/L	--	--	< 5.8	< 5.52	< 5.49	< 5.65						
4:2 FTS	757124-72-4	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
6:2 FTS	27619-97-2	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
8:2 FTS	39108-34-4	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
10:2 FTS	120226-60-0	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
PFOSA	754-91-6	ng/L	20	2 <sup>c</sup>	15.9	33.2	< 4.39	78.1						
NMeFOSA	31506-32-8	ng/L	--	--	< 23.2	< 22.1	< 22	< 22.6						
NEtFOSA	4151-50-2	ng/L	20	2 <sup>c</sup>	< 23.2	< 22.1	< 22	< 22.6						
MeFOSAA	2355-31-9	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
EiFOSAA	2991-50-6	ng/L	20	2 <sup>c</sup>	< 4.64	< 4.41	< 4.39	< 4.52						
NMeFOSE	24448-09-7	ng/L	--	--	< 23.2	< 22.1	< 22	< 22.6						
NEtFOSE	1691-99-2	ng/L	20	2 <sup>c</sup>	< 23.2	< 22.1	< 22	< 22.6						
GenX	13252-13-6	ng/L	300	30	< 5.8	< 5.52	< 5.49	< 5.65						
DONA	919005-14-4	ng/L	3,000	600	< 4.64	< 4.41	< 4.39	< 4.52						
F-53B Major	756426-58-1	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
F-53B Minor	763051-92-9	ng/L	--	--	< 4.64	< 4.41	< 4.39	< 4.52						
*Combined Six	N/A	ng/L	20	2 <sup>c</sup>	17.00	0.85	37.50	1.88	1.23	0.06	84.85	4.24		
Note:					HI	0.85	HI	1.88	HI	0.06	HI	4.24		

Note:  
<sup>c</sup>DHS recommends a combined (c) standard for NEtFOSE, NEtFOSA, NEtFOSAA, FOSA, PFOS and PFOA  
ng/L - nanograms per liter  
J - Estimated value (+/- indicates bias)  
R - Rejected  
UJ - Estimated limit of detection (LOD)  
HQ - Hazard Quotient as per DHS 11/17/20 letter  
HI - Hazard Index as per DHS 11/17/20 letter  
Non-detects reported as < LOD  
Bold indicates a PAL exceedance, proposed.  
Bold and underlining indicates an ES exceedance, proposed.  
-- No NR 140 ES or PAL established.  
NA = Not analyzed

**From:** Beggs, Tauren R - DNR  
**Sent:** Tuesday, September 7, 2021 9:58 AM  
**To:** Henderson, Dave  
**Cc:** GravelPit  
**Subject:** RE: Hazard Index (HI) Calculations

Thanks Dave

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

---

**From:** Henderson, Dave <[Dave.Henderson@aecom.com](mailto:Dave.Henderson@aecom.com)>  
**Sent:** Tuesday, September 7, 2021 9:57 AM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Cc:** GravelPit <[GravelPit@manitowoc.org](mailto:GravelPit@manitowoc.org)>  
**Subject:** RE: Hazard Index (HI) Calculations

Tauren,

Working on it – still digging out from vacation!

I'll prioritize it.

dsh

**David Henderson, P.E. (WI)**  
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**From:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Sent:** Tuesday, September 07, 2021 9:50 AM  
**To:** Henderson, Dave <[Dave.Henderson@aecom.com](mailto:Dave.Henderson@aecom.com)>  
**Cc:** GravelPit <[GravelPit@manitowoc.org](mailto:GravelPit@manitowoc.org)>  
**Subject:** [EXTERNAL] Hazard Index (HI) Calculations

Good morning Dave,

Just checking in to see what the status is on submitting the HI calculations. Please let me know when you get a chance.

Regards,

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

**Tauren R. Beggs**

Hydrogeologist & Northeast Region Land Recycling Expert

Remediation and Redevelopment Program

Wisconsin Department of Natural Resources

2984 Shawano Ave

Green Bay, WI 54313

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

[dnr.wi.gov](http://dnr.wi.gov)

**From:** Kloczko, Nathan F - DHS  
**Sent:** Thursday, August 26, 2021 3:31 PM  
**To:** Beggs, Tauren R - DNR  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Thanks! I'd appreciate that.

Nathan Kloczko, MPH  
(he, him, his)  
Site Evaluation Program Coordinator  
Bureau of Environmental and Occupational Health  
Division of Public Health | Wisconsin Department of Health Services  
1 W. Wilson Street, Room 150 | Madison, WI 53703

cell: 608.867.4448 | phone: 608.267.3227 | fax: 608.267.4853  
email: [nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)

---

**From:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Sent:** Thursday, August 26, 2021 3:30 PM  
**To:** Kloczko, Nathan F - DHS <[nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)>  
**Cc:** Nobile, Trevor W - DNR <[Trevor.Nobile@wisconsin.gov](mailto:Trevor.Nobile@wisconsin.gov)>; Chronert, Roxanne N - DNR <[Roxanne.Chronert@wisconsin.gov](mailto:Roxanne.Chronert@wisconsin.gov)>  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Hi Nathan,

The City of Manitowoc indicated on our call with them yesterday that their consultant-AECOM did do the Hazard Index calculations and there were no other wells (beyond the 27 impacted above the proposed ES) that were above the Hazard Index equaling or exceeding 1.0. DNR asked the City to have AECOM provide their HI calculations spreadsheet they completed.

At the current time, DNR has not received the spreadsheet. I also do not have a map of the sampled wells. I can let you know and forward this information on when I receive it.

Regards,

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

---

**From:** Kloczko, Nathan F - DHS <[nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)>  
**Sent:** Thursday, August 26, 2021 2:25 PM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Hi, Tauren.

Thanks for sending these over. Two questions:

- Do you have a spreadsheet with the results entered, so we can look at the HI calculations, or was that done when looking at the results individually?
- Is there a map from the consultant with the sampled wells?

If the answer to both of those is no, that's fine, just wanted to check to see.

Thanks!

Nathan

Nathan Kloczko, MPH

(he, him, his)

Site Evaluation Program Coordinator

Bureau of Environmental and Occupational Health

Division of Public Health | Wisconsin Department of Health Services

1 W. Wilson Street, Room 150 | Madison, WI 53703

cell: 608.867.4448 | phone: 608.267.3227 | fax: 608.267.4853

email: [nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)



**From:** Beggs, Tauren R - DNR  
**Sent:** Thursday, August 26, 2021 9:55 AM  
**To:** Karen Dorow  
**Cc:** GravelPit  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Good morning Karen,

Thanks for all the information provided yesterday. Just to follow up from yesterday's call, please have AECOM provide their Hazard Index calculations spreadsheet to the DNR as soon as they can, provide the notification letters sent to the property owners, and let DNR know when you have had your internal meeting and plan to discuss next steps with DNR.

If you have any questions, please feel free to contact me.

Thanks,

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

**From:** Beggs, Tauren R - DNR  
**Sent:** Thursday, August 26, 2021 8:01 AM  
**To:** Hedman, Curtis J - DHS; Kloczko, Nathan F - DHS  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Hi Curtis,

Yes, they were provided with Nathan's contact information for any DHS health related questions.

Regards,

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

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**From:** Hedman, Curtis J - DHS <[Curtis.Hedman@dhs.wisconsin.gov](mailto:Curtis.Hedman@dhs.wisconsin.gov)>  
**Sent:** Wednesday, August 25, 2021 9:49 PM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>; Kloczko, Nathan F - DHS <[nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)>  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Tauren,

Thanks for the information. Were residents from the 27 impacted residences provided DHS contact information in the event they had any follow up health questions?

Best,

Curtis

Curtis Hedman, Ph.D.  
Toxicologist  
Bureau of Environmental and Occupational Health  
Division of Public Health, Wisconsin Department of Health Services  
1 W Wilson St, Rm 150  
Madison, WI 53701

Phone: 608-266-6677  
FAX: 608-267-4853  
Cell: 608-287-4152

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**From:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Sent:** Wednesday, August 25, 2021 3:48 PM  
**To:** Hedman, Curtis J - DHS <[Curtis.Hedman@dhs.wisconsin.gov](mailto:Curtis.Hedman@dhs.wisconsin.gov)>; Kloczko, Nathan F - DHS <[nathan.kloczko@dhs.wisconsin.gov](mailto:nathan.kloczko@dhs.wisconsin.gov)>  
**Cc:** Nobile, Trevor W - DNR <[Trevor.Nobile@wisconsin.gov](mailto:Trevor.Nobile@wisconsin.gov)>; Chronert, Roxanne N - DNR <[Roxanne.Chronert@wisconsin.gov](mailto:Roxanne.Chronert@wisconsin.gov)>  
**Subject:** FW: External: Newton Pit - emerging contaminant results by address

Hi Curtis and Nathan,

DNR received results for PFAS in private wells for the Newton Gravel Pit. All impacted private wells above proposed ES (27 wells) have been provided bottled water. Results were also compared to the Hazard Index. Attached is an email of the summary of results based on my quick review and a summary of the actions the City of Manitowoc took to address the 27 private wells above the ES.

If you have any questions, please let me know. I can call you to go over more details, but at least wanted to get this information out to you.

Regards,

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

**From:** Beggs, Tauren R - DNR  
**Sent:** Wednesday, August 25, 2021 2:56 PM  
**To:** Haag, Christine T - DNR; Burton, Kyle - DNR; Nobile, Trevor W - DNR  
**Subject:** FW: Private Well Notification Letter Examples for Newton Gravel Pit

Below are a few examples of the letters that went out. I will get the notification letters from the City in PDFs that I can use to put in the BRRTS database, but this is what she was able to provide now while she was in another meeting.

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

---

**From:** Karen Dorow <[kdorow@manitowoc.org](mailto:kdorow@manitowoc.org)>  
**Sent:** Wednesday, August 25, 2021 2:52 PM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Subject:** FW: Letters

Hi Tauren,

Following are examples of the letters you requested.

Karen Dorow | Business Manager  
City of Manitowoc  
900 Quay Street  
Manitowoc, WI 54220  
Office (920) 686-6514  
Mobile (920) 374-0404



# CITY OF MANITOWOC

WISCONSIN, USA

[www.manitowoc.org](http://www.manitowoc.org)

July 30, 2021

Mr. & Mrs. Charles Smith  
2918 S. 19<sup>th</sup> St.  
Manitowoc, WI 54220

**COPY**

Dear Mr. & Mrs. Smith:

Thank you for participating in the private drinking water well sampling done by the City of Manitowoc as part of an ongoing environmental groundwater investigation associated with the Former Town of Newton Gravel Pit. Your private well was included in the sampling that took place on June 1, 2021.

The City is in receipt of the sample results for your property. The results indicate the presence of cis-1-2-Dichloroethene, detected by the laboratory at levels below the drinking water standard of 70 micrograms per liter (ug/l). The results also indicate the presence of vinyl chloride above the drinking water standard of .20 ug/l.

As a precautionary measure, the City also tested for an emerging group of contaminants per- and polyfluoroalkyl substances (PFAS). It is not uncommon to find low levels of PFAS in the environment, as PFAS can be found in fire-fighting foams, stain repellants, nonstick cookware, waterproof clothing, food wrappers, and many other household products. The U.S. Environmental Protection Agency (EPA) set a Lifetime Health Advisory limit for two PFAS compounds in drinking water, Perfluorooctanoic acid (PFOA) (CAS 335-67-1) and perfluorooctane (PFOS) (CAS 1763-23-1) of 70 parts per trillion (ppt, equal to 70 ng/L). The EPA has not set health advisory levels for other PFAS compounds at this time.

The Wisconsin Department of Health Services (WDHS) made a recommendation to the Wisconsin Department of Natural Resources (WDNR) for PFOA, PFOS, Perfluorooctanoic acid (PFOA) (CAS 335-67-1), Perfluorooctanesulfonamide (PFOSA) (CAS 754-91-6), N-Ethylperfluorooctanesulfonamide (NEtFOSA) (CAS 4151-50-2), N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) (CAS 2991-50-6), and N-Ethylperfluorooctanesulfonamidoethanol (NEtFOSE) (CAS 1691-99-2) standards in groundwater at a proposed combined enforcement standard of 20 ng/l and a proposed preventive action limit of 2 ng/l. Based upon these recommendations the WDNR is reviewing these proposed standards. Wisconsin does not currently have regulatory drinking water standards for PFOA, PFOS, PFOSA, NEtFOSA, NEtFOSSA, or NEtFOse.

Analytical results for your well indicate the presence of PFOA at 13.9 ng/l and PFOS at 2.23 ng/l for a combined total of 16.13 ng/l which is below the EPA Lifetime Health

ENGINEERING DEPARTMENT  
900 QUAY STREET • MANITOWOC WI 54220 • 920.686.6910

Code  
Sample ID  
Material

Advisory limit of 70 ng/l. The results indicate the presence of PFOA at 13.9 ng/l, PFOSA at 132 ng/l and PFOS at 2.23 ng/l for a combined total of 148.13 ng/l. Under the new WDHS proposed standards your water would have an exceedance of the proposed standard of 20 ng/l. Other compounds detected were below proposed standards. Based on these results, WDHS recommends the following:

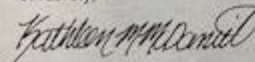
- Bottled water or another safe alternative water source should be used for drinking and preparing food, preparing infant formula, watering fruit and vegetable gardens, and for drinking water for pets.

Since your property had an exceedance of vinyl chloride and while the proposed WDHS PFAS standards are not law, out of an abundance of caution, we recommend that you continue to use bottled water the City has provided you from Kaat's Culligan for drinking, cooking and brushing teeth. A copy of your laboratory analytical results is attached.

If you have any questions please feel free to call us or the WDNR and WHDS contacts listed below:

- Well water/sample results: Jim Kasdorf (920) 387-7872  
WDNR, Drinking & Groundwater
- Investigation/future activities: Tauren Beggs (920) 510-3472  
WDNR, Remediation & Redevelopment
- Health Questions: Nathan Kloczko (608) 867-4448  
Wisconsin Department of Health Services
- General Questions: Karen Dorow (920) 686-6514  
City of Manitowoc, Business Manager for Department of Public Infrastructure

Sincerely,



Kathleen McDaniel  
City Attorney  
City of Manitowoc



Dan Koski, P.E.  
Director of Public Infrastructure  
City of Manitowoc

Attachment: Laboratory Data



# CITY OF MANITOWOC

WISCONSIN, USA

[www.manitowoc.org](http://www.manitowoc.org)

August 5, 2021

**COPY**

Mr. & Mrs. Matthew McFarlane  
4002 Thunder Ridge Rd.  
Manitowoc, WI 54220

Dear Mr. & Mrs. McFarlane:

Thank you for participating in the private drinking water well sampling done by the City of Manitowoc as part of an ongoing environmental groundwater investigation associated with the Former Town of Newton Gravel Pit. Your private well was tested on June 2, 2021.

As a precautionary measure, the City tested for an emerging group of contaminants per- and polyfluoroalkyl substances (PFAS). It is not uncommon to find low levels of PFAS in the environment, as PFAS can be found in fire-fighting foams, stain repellants, nonstick cookware, waterproof clothing, food wrappers, and many other household products. The U.S. Environmental Protection Agency (EPA) set a Lifetime Health Advisory limit for two PFAS compounds in drinking water, Perfluorooctanoic acid (PFOA) (CAS 335-67-1) and perfluorooctane (PFOS) (CAS 1763-23-1) of 70 parts per trillion (ppt, equal to 70 ng/L). The EPA has not set health advisory levels for other PFAS compounds at this time.

The Wisconsin Department of Health Services (WDHS) made a recommendation to the Wisconsin Department of Natural Resources (WDNR) for PFOA, PFOS, Perfluorooctanoic acid (PFOA) (CAS 335-67-1), Perfluorooctanesulfonamide (PFOSA) (CAS 754-91-6), N-Ethylperfluorooctanesulfonamide (NEtFOSA) (CAS 4151-50-2), N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) (CAS 2991-50-6), and N-Ethylperfluorooctanesulfonamidoethanol (NEtFOSE) (CAS 1691-99-2) standards in groundwater at a proposed combined enforcement standard of 20 ng/l and a proposed preventive action limit of 2 ng/l. Based upon these recommendations the WDNR is reviewing these proposed standards. Wisconsin does not currently have regulatory drinking water standards for PFOA, PFOS, PFOSA, NEtFOSA, NEtFOSSA, or NEtFOse.

Analytical results for your well did not indicate the presence of PFOA or PFOS. The results indicate the presence of PFOSA at 13.0 ng/l which is below the new WDHS proposed standards.

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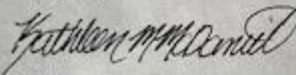
ENGINEERING DEPARTMENT  
900 QUAY STREET • MANITOWOC WI 54220 • 920.686.6910

According to the WDNR proposed guidelines the well water remains fit for consumption and you can continue using it with no limitations. A copy of your laboratory analytical results is attached.

If you have any questions please feel free to call us or the WDNR and WHDS contacts listed below:

- Well water/sample results: Jim Kasdorf (920) 387-7872  
WDNR, Drinking & Groundwater
- Investigation/future activities: Tauren Beggs (920) 510-3472  
WDNR, Remediation & Redevelopment
- Health Questions: Nathan Kloczko (608) 867-4448  
Wisconsin Department of Health Services
- General Questions: Karen Dorow (920) 686-6514  
City of Manitowoc, Business Manager for Department of Public Infrastructure

Sincerely,



Kathleen McDaniel  
City Attorney  
City of Manitowoc



Dan Koski, P.E.  
Director of Public Infrastructure  
City of Manitowoc

Attachment: Laboratory Data





# CITY OF MANITOWOC

WISCONSIN, USA  
[www.manitowoc.org](http://www.manitowoc.org)

July 30, 2021

Mr. & Mrs. James Eberhardt  
2911 CTH CR  
Manitowoc, WI 54220

**COPY**

Dear Mr. & Mrs. Eberhardt:

The City has been conducting sampling of the private potable wells in the vicinity of the Former Newton Gravel Pit. Your private well was included in the sampling that took place on May 24, 2021.

The City is in receipt of the sample results for your property. The results do not indicate the presence of Volatile Organic Compounds (VOCs).

As a precautionary measure, the City also tested for an emerging group of contaminants per- and polyfluoroalkyl substances (PFAS). It is not uncommon to find low levels of PFAS in the environment, as PFAS can be found in fire-fighting foams, stain repellants, nonstick cookware, waterproof clothing, food wrappers, and many other household products. The U.S. Environmental Protection Agency (EPA) set a Lifetime Health Advisory limit for two PFAS compounds in drinking water, Perfluorooctanoic acid (PFOA) (CAS 335-67-1) and perfluorooctane (PFOS) (CAS 1763-23-1) of 70 parts per trillion (ppt, equal to 70 ng/L). The EPA has not set health advisory levels for other PFAS compounds at this time.

The Wisconsin Department of Health Services (WDHS) made a recommendation to the Wisconsin Department of Natural Resources (WDNR) for PFOA, PFOS, Perfluorooctanoic acid (PFOA) (CAS 335-67-1), Perfluorooctanesulfonamide (PFOSA) (CAS 754-91-6), N-Ethylperfluorooctanesulfonamide (NEtFOSA) (CAS 4151-50-2), N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) (CAS 2991-50-6), and N-Ethylperfluorooctanesulfonamidoethanol (NEtFOSE) (CAS 1691-99-2) standards in groundwater at a proposed combined enforcement standard of 20 ng/l and a proposed preventive action limit of 2 ng/l. Based upon these recommendations the WDNR is reviewing these proposed standards. Wisconsin does not currently have regulatory drinking water standards for PFOA, PFOS, PFOSA, NEtFOSA, NEtFOSSA, or NEtFose.

Analytical results for your well indicate the presence of PFOA at 2.73ng/l and PFOS at 1.40 for a combined total of 4.13 which is below the EPA Lifetime Health Advisory limit of 70 ng/l. The results indicate the presence of PFOA at 2.73 ng/l, PFOSA at 33.1 ng/l and PFOS at 1.40 ng/l for a combined total of 37.23 ng/l. Under the new WDHS proposed standards your water would have an exceedance of the proposed standard of 20 ng/l. Other compounds detected are below proposed standards. Based on these results, WDHS recommends the following:

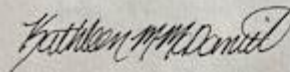
- Bottled water or another safe alternative water source should be used for drinking and preparing food, preparing infant formula, watering fruit and vegetable gardens, and for drinking water for pets.

While these standards are not law, the City has provided you with bottled water to use for drinking, cooking and brushing teeth out of an abundance of caution. We recommend as a cautionary measure that you continue to use bottled water being provided.

If you have any questions please feel free to call us or the WDNR contacts listed below:

- Well water/sample results: Jim Kasdorf (920) 387-7872  
WDNR, Drinking & Groundwater
- Investigation/future activities: Tauren Beggs (920) 510-3472  
WDNR, Remediation & Redevelopment
- Health Questions: Nathan Kloczko (608) 867-4448  
Wisconsin Department of Health Services
- General Questions: Karen Dorow (920) 686-6514  
City of Manitowoc, Business Manager for Department of Public Infrastructure

Sincerely,



Kathleen McDaniel  
City Attorney  
City of Manitowoc



Dan Koski, P.E.  
Director of Public Infrastructure  
City of Manitowoc

Attachment: Laboratory Data

**From:** Beggs, Tauren R - DNR  
**Sent:** Wednesday, August 25, 2021 1:31 PM  
**To:** Karen Dorow  
**Cc:** GravelPit  
**Subject:** RE: External: Newton Pit - emerging contaminant results by address

Hi Karen,

Thanks for providing the lab results. I have the following questions as follow up to this email:

- When were the letters sent to the property owners?
- Based on my very quick review of the data, it appears there were multiple private wells with PFAS concentrations above the individual or combined six compounds of Cycle 11 Recommended Groundwater Standards of 20ppt (my very quick count based on the lab data was 27 private wells above 20ppt). I didn't look at the Hazard Index (HI) in the brief time looking at the results. While some of the private wells were already impacted by vinyl chloride and owners previously provided bottled water, there appeared to be private wells that were impacted by PFAS that were not previously impacted by VOCs. Please confirm which private wells were impacted for PFAS above Cycle 11 and that bottled water has been provided to all the impacted owners that didn't already have bottled water.

I will be providing updates to other DNR staff regarding the results.

Regards,

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**Tauren R. Beggs**

Phone: (920) 510-3472

[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov) (preferred contact method during work at home)

---

**From:** Karen Dorow <[kdorow@manitowoc.org](mailto:kdorow@manitowoc.org)>  
**Sent:** Wednesday, August 25, 2021 11:34 AM  
**To:** Beggs, Tauren R - DNR <[Tauren.Beggs@wisconsin.gov](mailto:Tauren.Beggs@wisconsin.gov)>  
**Cc:** GravelPit <[GravelPit@manitowoc.org](mailto:GravelPit@manitowoc.org)>  
**Subject:** FW: External: Newton Pit - emerging contaminant results by address

Hi Tauren,

Attached are the results from the PFAS testing that was done the end of May/early June. All letters have been sent to property owners. Please let me know if you have any questions.

Regards,

Karen Dorow | Business Manager  
City of Manitowoc  
900 Quay Street  
Manitowoc, WI 54220  
Office (920) 686-6514  
Mobile (920) 374-0404

---

**From:** Henderson, Dave <[Dave.Henderson@aecom.com](mailto:Dave.Henderson@aecom.com)>  
**Sent:** Friday, July 9, 2021 10:24 AM  
**To:** GravelPit <[GravelPit@manitowoc.org](mailto:GravelPit@manitowoc.org)>  
**Subject:** External: Newton Pit - emerging contaminant results by address

Karen,

Attached are the PFAS lab results sorted by address. There are a total of 78 files representing 5 COCs (i.e. 2105292, 2105293, 2106040, 2106055, and 2106056). These are all of the results to date.

The reports are ready to send to home owners/well users, the WDNR, and Ned.

Please double check the address names on the files as you use them.

Thanks  
dsh

**David Henderson, P.E. (WI)**  
Senior Project Manager, Environment, Midwest  
D +1-414-944-6190  
M +1-414-429-8304  
[Dave.Henderson@aecom.com](mailto:Dave.Henderson@aecom.com)

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1555 N RiverCenter Drive  
Milwaukee, WI 53212, USA  
T +1-414-944-6080  
[aecom.com](http://aecom.com)

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