

WATER TREATMENT PLANT, EAST LIVERPOOL, OHIO															
MANGANESE TSP CONCENTRATIONS ( µg/m3) 2013-2020 (Jan)															
2013		2014		2015		2016		2017		2018		2019		2020*	
Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3
2013-01-01	0.09	2014-01-02	5.00	2015-01-03	0.69	2016-01-01	0.06	2017-01-01	0.05	2018-01-02	0.03	2019-01-03	1.35	2020-01-01	0.03
2013-01-04	0.08	2014-01-05	5.00	2015-01-06	0.41	2016-01-04	0.67	2017-01-04	0.05	2018-01-05	0.03	2019-01-06	0.63	2020-01-04	0.15
2013-01-10	1.50	2014-01-08	0.40	2015-01-09	0.22	2016-01-07	2.50	2017-01-07	0.05	2018-01-08	AN	2019-01-09	0.06	2020-01-07	2.20
2013-01-13	4.00	2014-01-11	0.07	2015-01-12	1.10	2016-01-10	0.34	2017-01-10	0.58	2018-01-11	1.02	2019-01-12	0.50	2020-01-10	4.56
2013-01-16	0.08	2014-01-14	1.00	2015-01-15	4.80	2016-01-13	0.08	2017-01-13	0.89	2018-01-14	0.03	2019-01-15	0.08	2020-01-13	1.48
2013-01-19	0.05	2014-01-17	0.17	2015-01-18	0.67	2016-01-16	0.16	2017-01-16	AN	2018-01-17	0.03	2019-01-18	0.38	2020-01-16	0.06
2013-01-22	0.06	2014-01-20	0.05	2015-01-21	2.80	2016-01-19	2.40	2017-01-19	0.36	2018-01-20	0.04	2019-01-21	AN	2020-01-19	0.07
2013-01-25	0.66	2014-01-23	0.07	2015-01-24	0.24	2016-01-22	11.00	2017-01-22	0.11	2018-01-23	0.02	2019-01-24	0.03	2020-01-22	7.30
2013-01-28	0.10	2014-01-26	0.04	2015-01-27	0.22	2016-01-25	6.80	2017-01-25	0.12	2018-01-26	0.86	2019-01-27	0.04	2020-01-25	0.18
2013-01-31	0.07	2014-01-29	5.60	2015-01-30	0.25	2016-01-28	0.20	2017-01-28	AN	2018-01-29	1.40	2019-01-30	0.13	2020-01-28	0.06
2013-02-03	0.06	2014-02-01	3.20	2015-02-02	0.14	2016-01-31	0.16	2017-01-31	0.03	2018-02-01	0.08	2019-02-02	2.67	2020-01-31	1.76
2013-02-06	1.60	2014-02-04	2.20	2015-02-05	0.35	2016-02-03	0.28	2017-02-03	0.07	2018-02-04	0.19	2019-02-05	0.31		
2013-02-09	0.97	2014-02-07	3.50	2015-02-08	AN	2016-02-06	0.18	2017-02-06	1.50	2018-02-07	0.07	2019-02-08	0.26		
2013-02-12	1.00	2014-02-10	0.86	2015-02-11	1.20	2016-02-09	0.30	2017-02-09	0.06	2018-02-11	4.01	2019-02-11	1.18		
2013-02-15	2.10	2014-02-13	2.30	2015-02-14	0.16	2016-02-12	0.26	2017-02-12	0.08	2018-02-13	1.72	2019-02-14	2.40		
2013-02-18	1.70	2014-02-16	0.67	2015-02-17	0.60	2016-02-15	0.94	2017-02-15	0.07	2018-02-16	0.05	2019-02-17	0.45		
2013-02-21	1.20	2014-02-19	5.90	2015-02-20	0.55	2016-02-18	2.10	2017-02-18	0.30	2018-02-19	1.34	2019-02-20	2.46		
2013-02-24	0.60	2014-02-22	0.27	2015-02-23	0.21	2016-02-21	0.20	2017-02-21	6.50	2018-02-22	0.64	2019-02-23	0.32		
2013-02-27	0.06	2014-02-25	0.08	2015-02-26	0.73	2016-02-24	1.20	2017-02-24	0.52	2018-02-25	0.04	2019-02-26	0.98		
2013-03-02	0.08	2014-02-28	5.60	2015-03-01	0.47	2016-02-27	0.13	2017-02-27	0.83	2018-02-28	0.18	2019-03-01	1.16		
2013-03-05	8.10	2014-03-03	1.50	2015-03-04	1.40	2016-03-01	1.70	2017-03-02	0.05	2018-03-03	0.11	2019-03-04	0.11		
2013-03-08	0.74	2014-03-06	4.80	2015-03-07	0.49	2016-03-04	0.53	2017-03-05	0.10	2018-03-06	2.39	2019-03-07	0.18		
2013-03-11	2.50	2014-03-09	0.51	2015-03-10	18.00	2016-03-07	0.91	2017-03-08	0.04	2018-03-09	0.03	2019-03-10	0.14		
2013-03-14	0.24	2014-03-12	0.25	2015-03-13	5.30	2016-03-10	0.45	2017-03-11	0.12	2018-03-12	0.21	2019-03-13	1.65		
2013-03-17	0.24	2014-03-15	0.20	2015-03-16	2.90	2016-03-13	0.09	2017-03-14	0.22	2018-03-15	0.28	2019-03-16	0.02		
2013-03-20	0.10	2014-03-18	2.50	2015-03-19	6.70	2016-03-16	0.76	2017-03-17	0.86	2018-03-18	0.35	2019-03-19	0.90		
2013-03-23	0.28	2014-03-21	2.30	2015-03-22	0.60	2016-03-19	0.25	2017-03-20	0.55	2018-03-21	0.33	2019-03-22	0.21		
2013-03-26	0.06	2014-03-24	0.39	2015-03-25	1.90	2016-03-22	3.70	2017-03-23	2.13	2018-03-24	0.16	2019-03-25	1.32		
2013-03-29	0.84	2014-03-27	2.70	2015-03-28	0.29	2016-03-25	0.03	2017-03-26	0.10	2018-03-27	0.46	2019-03-28	0.54		
2013-04-01	0.08	2014-03-30	0.12	2015-03-31	1.70	2016-03-28	0.09	2017-03-29	1.04	2018-03-30	0.16	2019-03-31	0.07		
2013-04-04	3.10	2014-04-02	0.59	2015-04-03	0.80	2016-03-31	0.46	2017-04-01	0.37	2018-04-02	0.46	2019-04-03	0.41		
2013-04-07	0.29	2014-04-05	0.28	2015-04-06	7.90	2016-04-03	AN	2017-04-04	0.20	2018-04-05	0.11	2019-04-06	0.54		
2013-04-10	0.46	2014-04-08	0.24	2015-04-09	0.21	2016-04-06	2.60	2017-04-07	0.04	2018-04-08	0.04	2019-04-09	0.29		
2013-04-13	0.21	2014-04-11	0.35	2015-04-12	1.20	2016-04-09	0.07	2017-04-10	0.64	2018-04-11	0.31	2019-04-12	0.28		
2013-04-16	1.70	2014-04-14	0.34	2015-04-15	3.40	2016-04-12	0.42	2017-04-13	1.41	2018-04-14	0.21	2019-04-15	0.04		
2013-04-19	0.18	2014-04-17	0.99	2015-04-18	1.50	2016-04-15	4.50	2017-04-16	0.16	2018-04-17	0.03	2019-04-18	1.34		
2013-04-22	1.80	2014-04-20	0.36	2015-04-21	0.21	2016-04-18	4.10	2017-04-19	0.67	2018-04-20	0.40	2019-04-21	0.06		
2013-04-25	0.12	2014-04-23	0.08	2015-04-24	1.20	2016-04-21	8.40	2017-04-22	2.10	2018-04-23	1.25	2019-04-24	0.16		
2013-04-28	0.23	2014-04-26	2.90	2015-04-27	0.07	2016-04-24	0.18	2017-04-25	2.42	2018-04-26	0.27	2019-04-27	0.06		
2013-05-01	2.70	2014-04-29	1.00	2015-04-30	1.40	2016-04-27	0.45	2017-04-28	0.93	2018-04-29	0.04	2019-04-30	0.21		
2013-05-04	1.90	2014-05-02	0.05	2015-05-03	1.00	2016-04-30	0.25	2017-05-01	0.42	2018-05-02	0.99	2019-05-03	0.21		
2013-05-07	13.00	2014-05-05	0.79	2015-05-06	3.50	2016-05-03	0.72	2017-05-04	2.13	2018-05-05	0.19	2019-05-06	0.09		
2013-05-10	1.70	2014-05-08	1.30	2015-05-09	0.41	2016-05-06	4.00	2017-05-07	0.15	2018-05-08	0.33	2019-05-09	0.80		
2013-05-13	0.47	2014-05-11	0.56	2015-05-12	0.24	2016-05-09	1.60	2017-05-10	0.54	2018-05-11	0.94	2019-05-12	0.10		
2013-05-16	0.35	2014-05-14	0.21	2015-05-15	AN	2016-05-12	1.50	2017-05-13	0.11	2018-05-14	0.12	2019-05-15	0.39		
2013-05-19	0.28	2014-05-17	0.04	2015-05-18	1.10	2016-05-15	0.10	2017-05-16	2.11	2018-05-17	0.64	2019-05-18	0.20		
2013-05-22	0.13	2014-05-20	0.75	2015-05-21	AV	2016-05-18	1.40	2017-05-19	1.65	2018-05-20	0.14	2019-05-21	0.67		
2013-05-25	0.06	2014-05-23	0.37	2015-05-24	1.50	2016-05-21	0.10	2017-05-22	AN	2018-05-23	0.54	2019-05-24	0.62		
2013-05-28	0.85	2014-05-26	0.15	2015-05-27	AN	2016-05-24	0.31	2017-05-25	0.31	2018-05-26	0.14	2019-05-27	0.24		
2013-05-31	0.42	2014-05-29	0.66	2015-05-30	0.43	2016-05-27	0.91	2017-05-28	0.06	2018-05-29	0.52	2019-05-30	0.37		
2013-06-03	0.79	2014-06-01	0.53	2015-06-02	1.90	2016-05-30	0.15	2017-05-31	0.06	2018-06-01	0.06	2019-06-02	0.16		
2013-06-06	0.24	2014-06-04	0.77	2015-06-05	1.10	2016-06-02	0.16	2017-06-03	0.18	2018-06-04	0.10	2019-06-05	0.15		
2013-06-09	0.14	2014-06-07	0.50	2015-06-08	0.28	2016-06-05	0.04	2017-06-06	0.06	2018-06-07	1.25	2019-06-08	0.80		

**WATER TREATMENT PLANT, EAST LIVERPOOL, OHIO**  
**MANGANESE TSP CONCENTRATIONS ( µg/m3) 2013-2020 (Jan)**

2013		2014		2015		2016		2017		2018		2019		2020*	
Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3
2013-06-12	0.50	2014-06-10	1.20	2015-06-11	0.37	2016-06-08	0.08	2017-06-09	0.58	2018-06-10	0.08	2019-06-11	0.27		
2013-06-15	AN	2014-06-13	0.39	2015-06-14	0.09	2016-06-11	0.12	2017-06-12	0.18	2018-06-13	0.06	2019-06-14	0.10		
2013-06-18	0.70	2014-06-16	0.52	2015-06-17	13.00	2016-06-14	1.30	2017-06-15	0.29	2018-06-16	1.93	2019-06-17	0.22		
2013-06-21	0.45	2014-06-19	0.69	2015-06-20	6.80	2016-06-17	1.50	2017-06-18	0.04	2018-06-19	0.49	2019-06-20	0.05		
2013-06-24	AN	2014-06-22	0.24	2015-06-23	5.20	2016-06-20	0.35	2017-06-21	0.19	2018-06-22	1.70	2019-06-23	0.16		
2013-06-27	0.15	2014-06-25	0.78	2015-06-26	3.10	2016-06-23	0.22	2017-06-24	0.04	2018-06-25	0.91	2019-06-26	0.11		
2013-06-30	0.23	2014-06-28	1.50	2015-06-29	0.72	2016-06-26	0.05	2017-06-27	0.18	2018-06-28	0.19	2019-06-29	0.16		
2013-07-03	0.56	2014-07-01	0.33	2015-07-02	0.48	2016-06-29	0.16	2017-06-30	0.18	2018-07-01	0.10	2019-07-02	0.32		
2013-07-06	0.12	2014-07-04	0.22	2015-07-05	0.43	2016-07-02	0.04	2017-07-03	0.14	2018-07-04	0.13	2019-07-05	0.43		
2013-07-09	0.05	2014-07-07	0.24	2015-07-08	0.27	2016-07-05	0.07	2017-07-06	0.16	2018-07-07	0.17	2019-07-08	0.49		
2013-07-12	1.20	2014-07-10	0.55	2015-07-11	0.31	2016-07-08	0.05	2017-07-09	0.04	2018-07-10	0.23	2019-07-11	1.95		
2013-07-15	0.28	2014-07-13	0.60	2015-07-14	0.46	2016-07-11	0.83	2017-07-12	0.15	2018-07-13	1.99	2019-07-14	0.11		
2013-07-18	0.28	2014-07-16	0.37	2015-07-17	5.40	2016-07-14	0.05	2017-07-15	0.04	2018-07-16	0.88	2019-07-17	AN		
2013-07-21	0.11	2014-07-19	0.76	2015-07-20	0.60	2016-07-17	0.09	2017-07-18	0.25	2018-07-19	1.11	2019-07-20	0.11		
2013-07-24	0.25	2014-07-22	0.65	2015-07-23	4.50	2016-07-20	1.60	2017-07-21	0.09	2018-07-22	0.08	2019-07-23	0.36		
2013-07-27	0.16	2014-07-25	0.37	2015-07-26	0.58	2016-07-23	0.14	2017-07-24	0.03	2018-07-25	0.53	2019-07-26	0.63		
2013-07-30	0.86	2014-07-28	0.11	2015-07-29	1.40	2016-07-26	0.33	2017-07-27	0.06	2018-07-28	0.04	2019-07-29	0.17		
2013-08-02	0.22	2014-07-31	0.39	2015-08-01	0.41	2016-07-29	0.10	2017-07-30	0.04	2018-07-31	1.11	2019-08-01	0.63		
2013-08-05	0.41	2014-08-03	0.22	2015-08-04	0.58	2016-08-04	0.91	2017-08-02	0.69	2018-08-03	1.21	2019-08-04	0.22		
2013-08-08	0.28	2014-08-06	1.60	2015-08-07	7.30	2016-08-07	0.11	2017-08-05	0.08	2018-08-06	0.59	2019-08-07	0.03		
2013-08-11	0.12	2014-08-09	1.00	2015-08-10	18.00	2016-08-10	1.70	2017-08-08	0.39	2018-08-09	0.19	2019-08-10	0.42		
2013-08-14	0.06	2014-08-12	AN	2015-08-13	1.90	2016-08-13	0.04	2017-08-11	0.05	2018-08-12	0.27	2019-08-13	1.16		
2013-08-17	0.25	2014-08-15	0.78	2015-08-16	0.38	2016-08-16	0.05	2017-08-14	0.64	2018-08-15	0.44	2019-08-16	0.29		
2013-08-20	0.45	2014-08-18	1.50	2015-08-19	1.30	2016-08-19	0.25	2017-08-17	0.51	2018-08-18	0.13	2019-08-19	0.15		
2013-08-23	8.00	2014-08-21	0.29	2015-08-22	1.00	2016-08-22	0.26	2017-08-20	0.07	2018-08-21	0.36	2019-08-22	0.80		
2013-08-26	2.50	2014-08-24	0.19	2015-08-25	0.58	2016-08-25	0.04	2017-08-23	0.06	2018-08-24	0.85	2019-08-25	0.20		
2013-08-29	0.57	2014-08-27	0.75	2015-08-28	1.40	2016-08-28	0.07	2017-08-26	0.17	2018-08-27	0.19	2019-08-28	0.29		
2013-09-01	0.37	2014-08-30	0.64	2015-08-31	0.95	2016-08-31	0.51	2017-08-29	0.81	2018-08-30	0.73	2019-08-31	0.13		
2013-09-04	0.13	2014-09-02	0.27	2015-09-03	0.73	2016-09-03	0.12	2017-09-01	1.33	2018-09-02	0.01	2019-09-03	1.26		
2013-09-07	0.23	2014-09-05	4.40	2015-09-06	0.80	2016-09-06	0.38	2017-09-04	0.08	2018-09-05	0.01	2019-09-06	0.30		
2013-09-10	1.10	2014-09-08	7.30	2015-09-09	1.10	2016-09-09	0.12	2017-09-07	0.03	2018-09-08	0.01	2019-09-09	0.63		
2013-09-13	0.13	2014-09-11	0.24	2015-09-12	0.11	2016-09-12	0.54	2017-09-10	0.11	2018-09-11	0.01	2019-09-12	0.28		
2013-09-16	0.38	2014-09-14	0.37	2015-09-15	1.10	2016-09-15	0.81	2017-09-13	1.01	2018-09-14	AN	2019-09-15	0.07		
2013-09-19	0.65	2014-09-17	2.50	2015-09-18	0.84	2016-09-18	AN	2017-09-16	0.04	2018-09-17	0.01	2019-09-18	1.77		
2013-09-22	0.20	2014-09-20	1.20	2015-09-21	2.00	2016-09-21	1.10	2017-09-19	0.76	2018-09-20	0.01	2019-09-21	0.15		
2013-09-25	3.60	2014-09-23	7.60	2015-09-24	1.80	2016-09-24	AN	2017-09-22	0.65	2018-09-23	0.01	2019-09-24	0.13		
2013-09-28	AN	2014-09-26	32.00	2015-09-27	5.60	2016-09-27	0.30	2017-09-25	12.00	2018-09-26	0.01	2019-09-27	2.62		
2013-10-01	0.78	2014-09-29	4.00	2015-09-30	1.00	2016-09-30	1.90	2017-09-28	0.36	2018-09-29	0.01	2019-09-30	0.51		
2013-10-04	1.20	2014-10-02	2.00	2015-10-03	5.70	2016-10-03	0.80	2017-10-01	0.09	2018-10-02	0.85	2019-10-03	0.20		
2013-10-07	0.21	2014-10-05	0.12	2015-10-06	14.00	2016-10-06	3.00	2017-10-04	0.27	2018-10-05	1.29	2019-10-06	0.06		
2013-10-10	1.80	2014-10-08	0.15	2015-10-09	8.90	2016-10-09	0.14	2017-10-07	0.05	2018-10-08	1.73	2019-10-09	1.14		
2013-10-13	1.10	2014-10-11	0.49	2015-10-12	5.10	2016-10-12	2.80	2017-10-10	0.36	2018-10-11	0.14	2019-10-12	0.12		
2013-10-16	AN	2014-10-14	7.00	2015-10-15	2.60	2016-10-15	0.07	2017-10-13	0.28	2018-10-14	AN	2019-10-15	2.27		
2013-10-19	0.42	2014-10-17	0.06	2015-10-18	0.19	2016-10-18	0.09	2017-10-16	0.08	2018-10-17	0.05	2019-10-18	0.28		
2013-10-22	0.35	2014-10-20	0.17	2015-10-21	1.40	2016-10-21	0.10	2017-10-19	0.30	2018-10-20	0.04	2019-10-21	1.11		
2013-10-25	0.65	2014-10-23	0.21	2015-10-24	0.40	2016-10-24	0.03	2017-10-22	0.08	2018-10-23	0.09	2019-10-24	0.46		
2013-10-28	4.80	2014-10-26	0.23	2015-10-27	18.00	2016-10-27	0.21	2017-10-25	0.02	2018-10-26	3.50	2019-10-27	0.04		
2013-10-31	0.54	2014-10-29	0.10	2015-10-30	0.45	2016-10-30	0.11	2017-10-28	0.07	2018-10-29	0.10	2019-10-30	0.96		
2013-11-03	1.40	2014-11-01	0.35	2015-11-02	1.60	2016-11-02	0.43	2017-10-31	0.08	2018-11-01	0.72	2019-11-02	0.14		
2013-11-06	1.60	2014-11-04	0.64	2015-11-05	1.80	2016-11-05	0.10	2017-11-03	0.35	2018-11-04	0.07	2019-11-05	1.12		
2013-11-09	1.80	2014-11-07	0.07	2015-11-08	0.96	2016-11-08	0.51	2017-11-06	0.31	2018-11-07	0.12	2019-11-08	0.13		
2013-11-12	0.22	2014-11-10	2.60	2015-11-11	0.53	2016-11-11	0.47	2017-11-09	0.25	2018-11-10	0.04	2019-11-11	0.66		
2013-11-15	2.00	2014-11-13	0.13	2015-11-14	0.10	2016-11-14	2.40	2017-11-12	0.18	2018-11-13	0.04	2019-11-14	0.49		

**WATER TREATMENT PLANT, EAST LIVERPOOL, OHIO**  
**MANGANESE TSP CONCENTRATIONS ( µg/m3) 2013-2020 (Jan)**

2013		2014		2015		2016		2017		2018		2019		2020*	
Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3	Date	µg/m3
2013-11-18	0.15	2014-11-16	0.16	2015-11-17	AN	2016-11-17	3.90	2017-11-15	0.54	2018-11-16	0.04	2019-11-17	0.14		
2013-11-21	9.50	2014-11-19	0.09	2015-11-20	1.00	2016-11-20	0.12	2017-11-18	1.10	2018-11-19	0.71	2019-11-20	0.86		
2013-11-24	0.22	2014-11-22	1.20	2015-11-23	0.25	2016-11-23	1.50	2017-11-21	0.21	2018-11-22	0.28	2019-11-23	0.38		
2013-11-27	0.17	2014-11-25	1.80	2015-11-26	2.90	2016-11-26	0.10	2017-11-24	1.15	2018-11-25	0.35	2019-11-26	1.67		
2013-11-30	3.40	2014-11-28	0.59	2015-11-29	2.00	2016-11-29	1.20	2017-11-27	16.80	2018-11-28	0.04	2019-11-29	0.47		
2013-12-03	2.20	2014-12-01	2.70	2015-12-02	0.31	2016-12-02	0.04	2017-11-30	1.54	2018-12-01	0.24	2019-12-02	0.02		
2013-12-06	0.62	2014-12-04	3.60	2015-12-05	0.71	2016-12-05	0.23	2017-12-03	0.46	2018-12-04	0.48	2019-12-05	0.66		
2013-12-09	0.06	2014-12-07	2.60	2015-12-08	1.30	2016-12-08	0.07	2017-12-06	0.08	2018-12-07	0.04	2019-12-08	0.12		
2013-12-12	0.15	2014-12-10	0.42	2015-12-11	1.50	2016-12-11	AN	2017-12-09	0.24	2018-12-10	0.32	2019-12-11	0.07		
2013-12-15	0.15	2014-12-13	0.06	2015-12-14	0.52	2016-12-14	0.02	2017-12-12	AN	2018-12-13	1.70	2019-12-14	0.07		
2013-12-18	5.90	2014-12-16	1.30	2015-12-17	0.45	2016-12-17	0.20	2017-12-15	0.61	2018-12-16	0.17	2019-12-17	0.10		
2013-12-21	0.22	2014-12-19	0.33	2015-12-20	1.40	2016-12-20	1.00	2017-12-18	0.08	2018-12-19	1.96	2019-12-20	6.59		
2013-12-24	0.26	2014-12-22	AV	2015-12-23	1.80	2016-12-23	0.16	2017-12-21	2.85	2018-12-22	0.05	2019-12-23	1.91		
2013-12-27	1.00	2014-12-25	0.24	2015-12-26	0.45	2016-12-26	0.04	2017-12-24	0.07	2018-12-25	2.12	2019-12-26	0.90		
2013-12-30	0.51	2014-12-28	0.26	2015-12-29	0.12	2016-12-29	0.31	2017-12-27	0.05	2018-12-28	0.90	2019-12-29	0.11		
		2014-12-31	0.08					2017-12-30	0.05	2018-12-31	0.11				

AQS Qualifier Code	Qualifier Description
*MD	Value less than MDL
AN	Machine Malfunction
AV	Power Failure
BA	Maintenance/Routine Repairs
AG	Sample Time out of Limits

\* Due to Covid-19 and Ohio's stay at home order, all filterable and canister data ceased collection after Jan. 2020. It is TBD when new data will be collected, analyzed and posted.