2021 Annual Monitoring Report

Olin Niagara Falls Plant
AOC Index No. R9-4171-94-08
NYSDEC Site No. 932051B
Niagara Falls, New York

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List of Abbreviations

Abbreviation	Definition
ARGC	Alundum Road Gill Creek
ft bgs	feet below ground surface
BHC	benzene hexachloride
GWTS	Groundwater Treatment System
Hg	mercury
NTU	nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
Olin	Olin Corporation
Order	Administrative Order on Consent
Plan	Optimized Monitoring Plan
PR	Passive Relief
PW	Pumping Well
RW	Recovery Well
Solvent	Solvent Chemical Corporation
VOC	volatile organic compounds

1.0 Introduction

Olin Corporation (Olin) is implementing a Remedial Plan (CRA, 1996) to address groundwater contamination at Plant 2, in Niagara Falls, New York (Site) as required by the Administrative Order on Consent (Order) #R9-4171-94-08 between the New York State Department of Environmental Conservation (NYSDEC) and Olin. The goals of the Remedial Plan are to reduce the concentration of constituents (aromatic compounds, benzene hexachloride isomers (BHCs), and mercury) in Site groundwater and to control migration of these constituents within the Alundum Road Gill Creek (ARGC) Area. Site groundwater is currently controlled by pumping wells located on Olin property that are operated by the Solvent Chemical Company (Solvent). These wells pump groundwater to a groundwater treatment system (GWTS) located on an adjacent property that is owned and operated by Solvent. Site groundwater is monitored semi-annually in accordance with the NYSDEC-approved Optimized Monitoring Plan (Wood, 2018).

This annual report describes 2021 Site activities and summarizes and evaluates the monitoring data collected during 2021 for compliance with the Order and Remedial Plan. The 2021 monitoring data shows continued effective hydraulic capture of A-zone groundwater [~8-10 feet below ground surface (ft bgs)] by passive relief wells (PRs) and B-zone groundwater (~16-21 ft bgs) by pumping wells PW-3B and PW-4B. Site constituent concentrations and distribution are generally consistent with historical monitoring data. Groundwater elevations indicate continued hydraulic control of groundwater in the ARGC Area. Operation of Olin's process water production well continues to capture C-Zone groundwater (~25-35 ft bgs) west of Gill Creek and CD-Zone groundwater (~45-50 ft bgs) west of monitoring well OBA-6C.

2.0 Site Activity

Site activities in 2021 were well maintenance and groundwater monitoring events in April and October. Groundwater monitoring events were conducted in accordance with the Optimized Monitoring Plan (Wood, 2018).

2.1 April 2021 Groundwater Monitoring

Groundwater level measurements and the well condition survey were completed on April 22, 2021 except well OBA-6B level which was read on April 23, 2021. OBA-2A was dry at 10.5 feet and no sample was collected. Additionally, groundwater level measurements were not collected from well PN-1A because it was obstructed.

The well condition survey indicated significant damage to flush mount well vault PR-14. The vault was replaced in third quarter 2021.

Groundwater quality samples were collected April 19-21, 23 and 26-30 from forty monitoring locations. Samples were collected using low flow groundwater sampling techniques and submitted to Pace Analytical Services in Melville, NY for analysis of volatile organic compounds (VOCs), pesticides, and mercury.

2.2 October 2021 Groundwater Monitoring

Groundwater level measurements and the well condition survey were completed on October 4, 2021. No major damages were noted at any of the measured wells. Three A-Zone wells were dry (OBA-16A, PN-2A, and PN-10A PN-19A). Four A-Zone Solvent wells were dry (OW-5A, OW-20A, OW-21A, and OW-22A), and water level measurements were not collected at those locations.

Groundwater quality samples were collected October 5-8, 2021 from the 15 semi-annual monitoring locations. PN-17B (annual monitoring frequency) was sampled again in October due to a suspected anomalous result in April. Samples were collected using the same techniques as described above.

Wells PN-17B and OBA-6B were evaluated for the presence of dense, non-aqueous phase liquids (DNAPL) due to potentially anomalous 1,2,4-Trichlorobenzene concentrations during the April sampling event. The DNAPL check was performed by removing one (1) gallon of water from the bottom of the well using a foot valve pump and inspecting for DNAPL using a graduated cylinder. No observable DNAPL was found in either of the two wells, but the purge water during the DNAPL check was very turbid. PN-17B and OBA-6B were both sampled during the October monitoring event with sample turbidities of 0 and 18.5 nephelometric turbidity units (NTU), respectively.

3.0 Hydraulic Analysis

Tables 3.1 and 3.2 present the groundwater elevations for the zones monitored at the site. These include wells screened in the A-Zone, B-Zone, C-Zone and CD-Zone. The water elevations were used to interpret the potentiometric surfaces within these groundwater zones.

3.1 A-Zone

Figures 3.1a and 3.1b show the interpreted A-Zone potentiometric surface for April and October 2021, respectively. These figures show A-Zone groundwater capture in the ARGC area by passive relief wells (i.e., groundwater flow is toward the passive relief wells which drain the A-Zone groundwater to the B-Zone).

Tables 3.1 and 3.2 show which wells had water level elevations that were below the physical bottom of the A-Zone. In cases where the A-Zone was dewatered, the A-Zone bottom (three feet below the top of bedrock) was used as a surrogate for the interpreted potentiometric surface.

3.2 B-Zone

Figures 3.2a and 3.2b present B-Zone potentiometric surface maps for April and October 2021, respectively. The potentiometric surfaces show effective capture of B-Zone groundwater by Solvent pumping wells PW-3B and PW-4B located on Olin property. The April 2021 PW-3B level was higher than historical measurements resulting in a less pronounced cone of depression, but the April 2021 PW-3B pumping rate was similar to previous operational levels. The October 2021 PW-3B level and pumping rate were consistent with historical observations and showed a cone of depression consistent with previous B-Zone potentiometric interpretations. It should be noted that Olin does not control pumping rates for the Solvent pumping wells.

3.3 C-Zone

Figures 3.3a through 3.3b show C-Zone potentiometric surface maps for April and October 2021. The April and October C-Zone potentiometric surface maps are generally consistent with previous C-Zone potentiometric surface maps and show a groundwater divide around OBA-15B and OBA-4C. Groundwater east of OBA-15B and OBA-4C generally flows east toward a low elevation at OBA-14C. Groundwater west of OBA-7C and OBA-1C generally flows west toward the Olin Production Wells in Plant 1.

3.4 CD-Zone

Figures 3.4a through 3.4b show CD-Zone potentiometric surface maps for April and October 2021. The historical CD-Zone potentiometric surface maps show a groundwater divide in the area of OBA-5C/OBA-6. Groundwater east of OBA-6C generally flows east toward a low elevation at OBA-3C. Groundwater west of OBA-6C generally flows west toward the Olin Production Wells in Plant 1.

4.0 Groundwater Quality

Tables 4.1 through 4.2 summarize the analytical results for each event. Figures 4.1 through 4.6 show the constituent distributions for the following indicator parameters in the A and B-Zones for the April and October 2021 sampling events:

- 1,2,4-Trichlorobenzene – aromatic indicator
- Gamma-BHC – pesticide indicator
- Total mercury

Appendix A also provides time series graphs depicting historical indicator parameter results for the wells sampled in 2021.

4.1 1,2,4-Trichlorobenzene

1,2,4-Trichlorobenzene concentrations were within site-wide historical ranges at most wells, but there were notable concentration increases and decreases. 1,2,4-Trichlorobenzene was detected at 108,000 µg/L in well PN-17B in April 2021 which is the highest 1,2,4-Trichlorobenzene concentration detected at the site. 1,2,4-Trichlorobenzene concentrations at PN-17B typically range between 10,000 to 20,000 µg/L which suggested this result was anomalous, but no issues were found with the data quality. Olin checked PN-17B for DNAPL during the October sampling event (Section 2.2) because of this result, but no DNAPL was observed in the well. The PN-17B 1,2,4-Trichlorobenzene concentration decreased in October 2021 to 70,200 µg/L. This result is still above the typical range for this constituent, but groundwater near PN-17B flows east toward the Solvent pumping system.

Notable increases were also observed at wells OBA-1A, OBA-1B, and PN-3A. 1,2,4-Trichlorobenzene is typically not detected at OBA-1A and OBA-1B, but detections of 53.3 µg/L and 196 µg/L were observed at OBA-1A and OBA-1B, respectively in April 2021. The B-Zone potentiometric maps suggest that the groundwater flow in this area can vary from north to east toward the Solvent pumping system. The 1,2,4-Trichlorobenzene concentration at PN-3A is typically below reporting limits but increased to 475 µg/L in April 2021. Groundwater near PN-3A flows toward nearby passive relief well, PR-3.

Notable decreases were observed at OBA-6B and OBA-16B in 2021. Increases beyond historical ranges were observed in these wells in 2020, but concentrations decreased to levels consistent with pre-2020 results in 2021.

4.2 Gamma-BHC

Gamma-BHC concentrations generally remained within historical ranges. Notable increases were observed at OBA-1B and OBA-4A. OBA-1B increased to 71 µg/L in 2021. Historical concentrations are consistently near the reporting limit.

OBA-4A was below the reporting limit of 0.05 µg/L in April but increased to 708 µg/L in October which is potentially an anomalous result. OBA-4A is located just east of Gill Creek. Gamma-BHC concentrations in B-Zone wells west of Gill Creek near OBA-4A are a similar order of magnitude to the October concentration at OBA-4A. Concentrations at OBA-4B are consistently below 1 µg/L. Olin will check the well depths in these wells during the next monitoring event to verify well depths.

4.3 Mercury

Mercury was only detected in 16 of 40 monitoring locations in April 2021 and was below the groundwater protection standard (2 µg/L) in 35 of the 40 monitoring locations. The maximum concentration of 20.2 µg/L was observed in well OBA-1B which was a notable decrease from the suspected anomalous April

2020 concentration of 1,670 µg/L. Mercury was not detected above the groundwater protection standard in the 15 monitoring locations sampled in October 2021.

5.0 Conclusions and Recommendations

The 2021 monitoring data shows effective hydraulic capture of A-zone groundwater in the ARGC area by PR wells and B-zone groundwater by Solvent pumping wells PW-3B and PW-4B. Additionally, C and CD-Zone groundwater is effectively captured by the Olin Production well. Concentration fluctuations are observed in individual wells which suggests that the site continues to move to a new equilibrium after the changes to the local groundwater flow pattern from the transition to hydraulic control by the Solvent pumping system.

High turbidity was observed in some of the wells during the April 2021 monitoring event, and Olin plans to clean the wells prior to the spring 2022 event to improve sample quality. The wells will be cleaned using mechanical cleaning techniques including brushing, surging, flushing, and over-pumping, as appropriate. Olin intends to clean the following monitoring wells in March 2022: OBA-6B, PN-17B, OBA-4A, OBA-4B, OBA-24B, PN-5B, and PN-24B.

6.0 References

CRA, 1996. Remedial Plan – Olin Chemicals Corp. – Niagara Falls, New York. Conestoga-Rovers & Associates February 1996

Wood, 2018. Optimized Monitoring Plan. Kennesaw, GA. Wood Environment & Infrastructure Solutions, Inc. June 29, 2018

Tables

Table 3.1: April 22, 2022 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A-Zone - Olin				
OBA-1A	562.33	570.67	2.60	568.07
OBA-2A	561.32	572.54	DRY	561.32
OBA-3A	552.36	572.07	15.66	556.41
OBA-4A	558.34	572.42	11.25	561.17
OBA-5A	557.72	571.72	7.55	564.17
OBA-6A	561.01	570.17	6.00	564.17
OBA-7A	562.71	573.39	7.21	566.18
OBA-8A	559.59	572.49	10.15	562.34
OBA-9A	558.01	569.24	6.41	562.83
OBA-9AR	557.28	570.22	7.54	562.68
OBA-10A	552.15	568.39	5.85	562.54
OBA-11A	558.76	572.83	15.00	557.83
OBA-14A	552.44	570.67	15.05	555.62
OBA-15A	551.06	572.59	15.96	556.63
OBA-16A	560.42	573.26	10.31	562.95
OBA-18A	559.18	573.47	13.15	560.32
OBA-19A	558.08	573.86	12.00	561.86
OBA-23A	560.94	570.19	7.61	562.58
OBA-24A	557.76	568.95	5.86	563.09
OBA-25A	558.07	569.02	5.21	563.81
OBA-26A	557.28	569.55	6.30	563.25
PN-1A	560.21	570.51	OBSTRUCTED	OBSTRUCTED
PN-2A	561.41	570.64	7.77	562.87
PN-3A	560.12	571.80	8.79	563.01
PN-4A	558.94	568.35	6.95	561.40
PN-5A	558.95	568.55	6.86	561.69
PN-6A	559.06	568.43	6.55	561.88
PN-7A	558.52	568.23	5.80	562.43
PN-8A	557.53	568.28	4.02	564.26
PN-9A	558.97	570.74	9.35	561.39
PN-10A	561.35	570.11	8.23	561.88
PN-11A	557.78	567.49	4.64	562.85
PN-12A	558.85	570.07	4.82	565.25

Table 3.1: April 22, 2022 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A-Zone - Olin Continued				
PN-13A	559.98	573.25	8.48	564.77
PN-14A	560.62	573.30	8.34	564.96
PN-15A	559.44	570.69	7.55	563.14
PN-16A	560.17	570.44	7.18	563.26
PN-17A	560.32	570.55	4.95	565.60
PN-18A	561.55	570.23	6.45	563.78
PN-19A	562.00	570.74	7.13	563.61
PN-20A	558.35	570.07	8.39	561.68
PN-21A	558.77	569.48	4.75	564.73
Gill Creek Stilling Well	NA	571.48	8.61	562.87
A-Zone - Solvent[4]				
OW-5A	NA	573.05	12.25	560.80
OW-6A	NA	572.10	10.75	561.35
OW-20A	NA	572.62	11.98	560.64
OW-21A	NA	569.33	DRY	DRY
OW-22A	NA	570.68	DRY	DRY
A/B-Zone - Olin[2,3]				
PR-1	561.70	572.29	8.65	563.64
PR-1-PZ	561.70	571.15	7.45	563.70
PR-2	561.17	572.21	14.55	557.66
PR-2-PZ	561.17	572.17	14.70	557.47
PR-3	557.65	572.39	15.70	556.69
PR-3-PZ	557.65	571.69	15.10	556.59
PR-4	556.58	569.66	12.40	557.26
PR-4-PZ	556.58	569.65	13.00	556.65
PR-5	558.47	570.18	12.85	557.33
PR-5-PZ	558.47	569.23	11.65	557.58
PR-6	559.35	568.28	10.85	557.43
PR-7	558.56	568.57	8.20	560.37
PR-8	558.91	567.97	9.73	558.24
PR-9	556.16	568.39	6.70	561.69
PR-10	558.38	568.16	6.98	561.18
PR-11	558.31	567.53	3.78	563.75

Table 3.1: April 22, 2022 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A/B-Zone - Olin Continued[2,3]				
PR-12	558.37	569.28	5.88	563.40
PR-13	559.15	568.69	11.45	557.24
PR-14	558.59	568.60	6.04	562.56
RW-1	560.93	573.22	DRY	DRY
RW-1-PZ	560.93	572.33	DRY	DRY
RW-2	559.03	572.01	15.40	556.61
RW-2-PZ	559.03	571.76	15.12	556.64
RW-3	556.69	569.40	12.76	556.64
RW-3-PZ	556.69	569.37	12.75	556.62
RW-4	557.05	569.27	12.48	556.79
RW-4-PZ	557.05	569.33	12.73	556.60
RW-5	556.81	569.28	11.30	557.98
RW-5-PZ	556.81	569.24	11.30	557.94
B-Zone - Olin[3]				
OBA-1B	NA	570.35	11.40	558.95
OBA-2B	NA	572.63	15.92	556.71
OBA-4B	NA	573.03	14.79	558.24
OBA-5B	NA	572.29	11.70	560.59
OBA-6B	NA	570.31	14.70	555.61
OBA-7B	NA	573.97	9.82	564.15
OBA-8B	NA	572.64	14.30	558.34
OBA-11B	NA	572.87	15.51	557.36
OBA-14B	NA	570.76	14.45	556.31
OBA-16B	NA	572.99	15.64	557.35
OBA-23B	NA	570.04	11.70	558.34
OBA-24B	NA	568.76	11.35	557.41
OBA-25B	NA	568.93	11.60	557.33
OBA-26B	NA	569.65	12.19	557.46
PN-1B	NA	570.32	12.10	558.22
PN-2B	NA	570.44	13.90	556.54
PN-3B	NA	571.73	14.34	557.39
PN-4B	NA	568.46	11.80	556.66
PN-5B	NA	568.58	18.95	549.63

Table 3.1: April 22, 2022 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
B-Zone - Olin Continued[3]				
PN-6B	NA	568.56	12.05	556.51
PN-7B	NA	568.45	11.10	557.35
PN-8B	NA	567.85	11.15	556.70
PN-9B	NA	570.68	14.05	556.63
PN-10B	NA	571.15	12.87	558.28
PN-11B	NA	567.78	10.00	557.78
PN-12B	NA	570.00	14.36	555.64
PN-13B	NA	573.24	15.70	557.54
PN-14B	NA	573.30	13.90	559.40
PN-15B	NA	570.70	15.66	555.04
PN-16B	NA	570.36	9.21	561.15
PN-17B	NA	570.54	12.35	558.19
PN-18B	NA	570.50	11.80	558.70
PN-19B	NA	570.64	10.00	560.64
PN-20B	NA	569.70	13.41	556.29
PN-21B	NA	569.39	9.95	559.44
PN-24B	NA	570.87	13.81	557.06
B-Zone - Solvent[4]				
PW-3B	NA	571.21	14.50	556.71
PW-4B	NA	569.72	14.11	555.61
OW-4B	NA	570.55	13.53	557.02
OW-14B	NA	570.87	13.95	556.92
OW-15B	NA	569.78	12.69	557.09
OW-22B	NA	570.90	18.25	552.65
OW-23B	NA	569.67	13.07	556.60
OW-24B	NA	570.36	13.52	556.84
OW-25B	NA	570.90	13.82	557.08
OW-31B	NA	570.14	12.86	557.28
OW-32B	NA	569.99	13.05	556.94
OW-33B	NA	569.55	12.83	556.72
C-Zone - Olin				
OBA-1C	NA	570.41	14.90	555.51
OBA-4C	NA	573.05	16.61	556.44

Table 3.1: April 22, 2022 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
C-Zone - Olin Continued				
OBA-7C	NA	574.30	19.00	555.30
OBA-14C	NA	570.15	15.80	554.35
OBA-15B	NA	573.13	16.83	556.30
CD-Zone - Olin				
OBA-2C	NA	572.43	18.12	554.31
OBA-3C	NA	572.67	18.55	554.12
OBA-5C	NA	572.01	17.21	554.80
OBA-6C	NA	570.35	14.70	555.65
OBA-8C	NA	573.14	20.65	552.49
OBA-11C	NA	572.94	16.89	556.05
PN-25C/CD	NA	571.26	19.10	552.16

Notes:

1. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.

2. Water elevations from the A/B-Zone wells with red text were used for the A-Zone potentiometric surface map. Pumping well piezometers (green text) were used for both A-Zone and B-Zone potentiometric surface maps.

3. The blue highlighted B-Zone elevations were not used when preparing the B-Zone potentiometric surface map. These elevations are anomalous or the wells may be poorly or not connected to the B-Zone indicated by elevations which are significantly higher than the average B-Zone elevation (~558.25).

4. Water levels from A-Zone & B-Zone Solvent wells located on Olin property between Gill Creek and Dupont Road were measured and used for the A-Zone and B-Zone potentiometric surface maps.

5. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate in gallons per minute is shown in place of the depth to water.

Prepared by: MMB 2/25/2022
Checked by: YL 2/1/2022

Table 3.2: October 4, 2021 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A-Zone - Olin				
OBA-1A	562.33	570.67	2.40	568.27
OBA-2A	561.32	572.54	9.45	563.09
OBA-3A	552.36	572.07	16.55	555.52
OBA-4A	558.34	572.42	10.75	561.67
OBA-5A	557.72	571.72	7.50	564.22
OBA-6A	561.01	570.17	5.90	564.27
OBA-7A	562.71	573.39	7.61	565.78
OBA-8A	559.59	572.49	10.15	562.34
OBA-9A	558.01	569.24	6.50	562.74
OBA-9AR	557.28	570.22	7.40	562.82
OBA-10A	552.15	568.39	5.50	562.89
OBA-11A	558.76	572.83	12.99	559.84
OBA-14A	552.44	570.67	14.61	556.06
OBA-15A	551.06	572.59	16.95	555.64
OBA-16A	560.42	573.26	DRY	560.42
OBA-18A	559.18	573.47	13.19	560.28
OBA-19A	558.08	573.86	11.18	562.68
OBA-23A	560.94	570.19	8.20	561.99
OBA-24A	557.76	568.95	5.49	563.46
OBA-25A	558.07	569.02	5.15	563.87
OBA-26A	557.28	569.55	6.20	563.35
PN-1A	560.21	570.51	6.45	564.06
PN-2A	561.41	570.64	DRY	561.41
PN-3A	560.12	571.80	8.75	563.05
PN-4A	558.94	568.35	7.05	561.30
PN-5A	558.95	568.55	6.55	562.00
PN-6A	559.06	568.43	6.30	562.13
PN-7A	558.52	568.23	5.70	562.53
PN-8A	557.53	568.28	3.67	564.61
PN-9A	558.97	570.74	10.20	560.54
PN-10A	561.35	570.11	DRY	561.35
PN-11A	557.78	567.49	4.57	562.92
PN-12A	558.85	570.07	5.79	564.28

Table 3.2: October 4, 2021 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A-Zone - Olin Continued				
PN-13A	559.98	573.25	9.85	563.40
PN-14A	560.62	573.30	9.45	563.85
PN-15A	559.44	570.69	7.45	563.24
PN-16A	560.17	570.44	7.35	563.09
PN-17A	560.32	570.55	4.90	565.65
PN-18A	561.55	570.23	7.15	563.08
PN-19A	562.00	570.74	7.45	563.29
PN-20A	558.35	570.07	8.42	561.65
PN-21A	558.77	569.48	4.75	564.73
Gill Creek Stilling Well	NA	571.48	8.68	562.80
A-Zone - Solvent[4]				
OW-5A	NA	573.05	DRY	DRY
OW-6A	NA	572.10	9.69	562.41
OW-20A	NA	572.62	DRY	DRY
OW-21A	NA	569.33	DRY	DRY
OW-22A	NA	570.68	DRY	DRY
A/B-Zone - Olin[2,3]				
PR-1	561.70	572.29	9.00	563.29
PR-1-PZ	561.70	571.15	7.72	563.43
PR-2	561.17	572.21	15.12	557.09
PR-2-PZ	561.17	572.17	14.84	557.33
PR-3	557.65	572.39	15.66	556.73
PR-3-PZ	557.65	571.69	15.06	556.63
PR-4	556.58	569.66	13.45	556.21
PR-4-PZ	556.58	569.65	13.00	556.65
PR-5	558.47	570.18	13.05	557.13
PR-5-PZ	558.47	569.23	12.05	557.18
PR-6	559.35	568.28	11.05	557.23
PR-7	558.56	568.57	5.05	563.52
PR-8	558.91	567.97	10.05	557.92
PR-9	556.16	568.39	6.00	562.39
PR-10	558.38	568.16	5.95	562.21
PR-11	558.31	567.53	NM	NM

Table 3.2: October 4, 2021 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
A/B-Zone - Olin Continued[2,3]				
PR-12	558.37	569.28	5.68	563.60
PR-13	559.15	568.69	11.60	557.09
PR-14	558.59	568.60	9.50	559.10
RW-1	560.93	573.22	15.01	558.21
RW-1-PZ	560.93	572.33	14.05	558.28
RW-2	559.03	572.01	16.31	555.70
RW-2-PZ	559.03	571.76	16.02	555.74
RW-3	556.69	569.40	13.80	555.60
RW-3-PZ	556.69	569.37	13.73	555.64
RW-4	557.05	569.27	12.70	556.57
RW-4-PZ	557.05	569.33	12.70	556.63
RW-5	556.81	569.28	11.61	557.67
RW-5-PZ	556.81	569.24	11.55	557.69
B-Zone - Olin[3]				
OBA-1B	NA	570.35	13.00	557.35
OBA-2B	NA	572.63	15.82	556.81
OBA-4B	NA	573.03	14.80	558.23
OBA-5B	NA	572.29	11.70	560.59
OBA-6B	NA	570.31	15.27	555.04
OBA-7B	NA	573.97	9.85	564.12
OBA-8B	NA	572.64	14.60	558.04
OBA-11B	NA	572.87	15.84	557.03
OBA-14B	NA	570.76	14.35	556.41
OBA-16B	NA	572.99	15.83	557.16
OBA-23B	NA	570.04	11.80	558.24
OBA-24B	NA	568.76	11.61	557.15
OBA-25B	NA	568.93	11.80	557.13
OBA-26B	NA	569.65	12.40	557.25
PN-1B	NA	570.32	12.16	558.16
PN-2B	NA	570.44	14.60	555.84
PN-3B	NA	571.73	14.25	557.48
PN-4B	NA	568.46	11.75	556.71
PN-5B	NA	568.58	11.95	556.63

Table 3.2: October 4, 2021 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
B-Zone - Olin Continued[3]				
PN-6B	NA	568.56	11.95	556.61
PN-7B	NA	568.45	11.30	557.15
PN-8B	NA	567.85	11.06	556.79
PN-9B	NA	570.68	14.03	556.65
PN-10B	NA	571.15	13.00	558.15
PN-11B	NA	567.78	9.75	558.03
PN-12B	NA	570.00	13.35	556.65
PN-13B	NA	573.24	16.65	556.59
PN-14B	NA	573.30	16.60	556.70
PN-15B	NA	570.70	13.55	557.15
PN-16B	NA	570.36	9.04	561.32
PN-17B	NA	570.54	12.50	558.04
PN-18B	NA	570.50	11.20	559.30
PN-19B	NA	570.64	11.40	559.24
PN-20B	NA	569.70	13.11	556.59
PN-21B	NA	569.39	12.55	556.84
PN-24B	NA	570.87	14.84	556.03
B-Zone - Solvent[4]				
PW-3B	NA	571.21	19.18	552.03
PW-4B	NA	569.72	13.29	556.43
OW-4B	NA	570.55	13.60	556.95
OW-14B	NA	570.87	14.35	556.52
OW-15B	NA	569.78	12.80	556.98
OW-22B	NA	570.90	14.22	556.68
OW-23B	NA	569.67	13.05	556.62
OW-24B	NA	570.36	13.57	556.79
OW-25B	NA	570.90	14.12	556.78
OW-31B	NA	570.14	13.35	556.79
OW-32B	NA	569.99	13.33	556.66
OW-33B	NA	569.55	12.82	556.73
C-Zone - Olin				
OBA-1C	NA	570.41	15.75	554.66
OBA-4C	NA	573.05	16.53	556.52

Table 3.2: October 4, 2021 Water Elevations

Well	A-Zone Bottom Elevation (feet)	Reference Point Elevation (feet)	Depth to Water (feet btoc)	Water Elevation[1] (feet)
C-Zone - Olin Continued				
OBA-7C	NA	574.30	18.83	555.47
OBA-14C	NA	570.15	15.62	554.53
OBA-15B	NA	573.13	16.55	556.58
CD-Zone - Olin				
OBA-2C	NA	572.43	17.00	555.43
OBA-3C	NA	572.67	19.25	553.42
OBA-5C	NA	572.01	16.75	555.26
OBA-6C	NA	570.35	5.75	564.60
OBA-8C	NA	573.14	20.64	552.50
OBA-11C	NA	572.94	17.20	555.74
PN-25C/CD	NA	571.26	19.25	552.01

Notes:

1. The orange highlighted water elevations are at or below the bottom of the A-Zone. A-Zone bottom elevations were used for these wells on the A-Zone potentiometric surface map.
2. Water elevations from the A/B-Zone wells with red text were used for the A-Zone potentiometric surface map. Pumping well piezometers (green text) were used for both A-Zone and B-Zone potentiometric surface maps.
3. The blue highlighted B-Zone elevations were not used when preparing the B-Zone potentiometric surface map. These elevations are anomalous or the wells may be poorly or not connected to the B-Zone indicated by elevations which are significantly higher than the average B-Zone elevation (~558.25).
4. Water levels from A-Zone & B-Zone Solvent wells located on Olin property between Gill Creek and Dupont Road were measured and used for the A-Zone and B-Zone potentiometric surface maps.
5. The Olin Production Well water elevation is calculated based on the production well flow rate using an empirical formula presented in the 1994 Remedial Facility Investigation. The flow rate in gallons per minute is shown in place of the depth to water.

Prepared by: NJM 2/25/2022
Checked by: YL 3/1/2022

Table 4.1: April 2021 Groundwater Analytical Result

Well ID:		Sample OBA-1A	Sample OBA-1B	Sample OBA-2B	Sample OBA-3A	Sample OBA-4A	Sample OBA-4B	Sample OBA-5A	Sample OBA-5B	Sample OBA-6B	Sample OBA-8A	Sample OBA-8B	Sample OBA-10A	Sample OBA-11B
Sample Date:		4/30/2021	4/30/2021	4/23/2021	4/21/2021	4/19/2021	4/20/2021	4/29/2021	4/29/2021	4/29/2021	4/20/2021	4/19/2021	4/30/2021	4/19/2021
Volatile Organic Compound Concentrations - SW846 8260C µg/L														
Aliphatic Compounds														
1,1,1-Trichloroethane	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	4.1	< 1.0 U	< 1.0 U	< 25 U	< 50 U	71.9	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
1,1,2,2-Tetrachloroethane	ug/l	< 1.0 U	< 1.0 U	15.2	181	< 1.0 U	< 1.0 U	< 25 U	< 50 U	161	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
1,1,2-Trichloroethane	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
1,1-Dichloroethene	ug/l	< 1.0 U	1.3 JH	< 1.0 U	7.3 JH	< 1.0 U	< 1.0 U	10.3 JQ	97.8 JH	1110	< 1.0 U	1.2 JH	< 1.0 U	6.5 JH
Carbon tetrachloride	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
Chloromethane (Methyl chloride)	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 UL	< 50 U	< 1.0 UL	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
cis-1,2-Dichloroethene	ug/l	2.6	23.6	61.6	945 J	< 1.0 U	18.2	382	4750	59100	< 1.0 U	13.9	7.8	963
Methylene chloride (Dichloromethane)	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 50 U	175	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U
Tetrachloroethene (PCE)	ug/l	2.9	153	110	870 J	7.6	22	429	2620	4020	4.1	25	19.7	15.6
trans-1,2-Dichloroethene	ug/l	< 1.0 U	< 1.0 U	1.8	21.7	< 1.0 U	< 1.0 U	< 25 U	50.9	441	< 1.0 U	< 1.0 U	< 1.0 U	6.2
Trichloroethene (TCE)	ug/l	5.3	122	129	1620 J	3.3	16.9	330	5750	45400	3.9	35.2	37.5	28.5
Vinyl chloride	ug/l	< 1.0 U	6.7 JH	< 1.0 U	54.1 JH	< 1.0 U	15.8	54.5 JH	1710 JH	26000 JH	< 1.0 U	8.1	1.9 JH	67.3
Aromatic Compounds														
1,2,4-Trichlorobenzene	ug/l	53.3 JH	196 JH	132	22.9	3.6	6.1	4270	7330 JH	52100	26.1	7930	4130 JH	128
1,2-Dichlorobenzene	ug/l	2.3 JH	19.9 JH	2.9	13.3	< 1.0 U	2.1	247	574 JH	8310	2.1	145	4970 JH	7.5
1,3-Dichlorobenzene	ug/l	1.5	24.5	4.3	16.1	< 1.0 U	3.0	477	1040	1700	10.3	354	851	16.3
1,4-Dichlorobenzene	ug/l	1.8	17.7	2.2	18.2	< 1.0 U	3.1	407	1110	189	5.4	57	3920	9.5
Benzene	ug/l	< 1.0 U	4.9	< 1.0 U	5.4	< 1.0 U	2.0	168	1720	1770	< 1.0 U	6.0	899	< 5.0 U
Chlorobenzene	ug/l	< 1.0 U	13.9	< 1.0 U	19.9	< 1.0 U	9.8	395	2450	847	< 1.0 U	10.3	1080	< 5.0 U
Pesticide Concentrations - SW846 8081B ug/L														
alpha-BHC	ug/l	0.36	136	0.32	1.1	< 0.05 U	0.027 JQ	134	355	21.5	0.14	1.4	186	1.2
beta-BHC	ug/l	4.0	0.53	0.2	0.61	< 0.05 U	0.068	37.4	24.4	10.1	0.27	1.1	17.1	0.47
delta-BHC	ug/l	0.052	0.51	< 0.05 U	0.36	< 0.05 U	< 0.05 U	2.6	6.0	0.72 J	< 0.05 U	< 0.05 U	2.8	0.076
gamma-BHC (Lindane)	ug/l	0.3	71	0.077	0.56	< 0.05 U	< 0.05 U	69.6	361	5.4	< 0.05 U	< 0.05 U	120	< 0.05 U
Total Metal Concentrations - SW846 7470A ug/L														
Mercury	ug/l	0.22	20.2	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.38	0.22	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.35
Field Sampling Parameters														
pH - E150.1, pH units	pH units	11.45	7.3	6.94	7.09	6.89	6.95	7.3	7.61	6.54	7.65	7.16	7.67	7.19
Specific Conductance - E120.1, mS/cm	ms/cm	9.46	22.3	3.7	2.01	1.26	3.88	4.2	7.76	6.4	1.95	2.13	6.18	1.9
Temperature - E170.1, deg C	deg C	11.59	10.8	10.17	9.97	14.52	10.97	12.09	12.66	11.35	16.15	14.75	12.55	11.09
Turbidity - E180.1, NTU	NTU	0	0.4	3.3	3.5	4.2	136	0	4.3	253	4.6	0.8	0	4.5

Notes:

deg C = degrees Celcius
mS/cm = microsiemens per centimeter
NTU = nephelometric turbidity units
ug/L - micrograms per liter

Data Qualifier Definitions:

J - Estimated concentration based on QC criteria
JH - Detected, possibly biased high based on QC criteria
JQ - Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL)
U - Constituent not detected above the Reporting Limit shown
UL - The analyte was not detected; however, the reported value may be biased low

Table 4.1: April 2021 Groundwater Analytical Result

	Well ID:	Sample OBA-14A	Sample OBA-14B	Sample OBA-15A	Sample OBA-16A	Sample OBA-16B	Duplicate OBA-16B	Sample OBA-23B	Sample OBA-24A	Sample OBA-24B	Duplicate OBA-24B	Sample OBA-25A	Sample OBA-25B	Duplicate OBA-25B	Sample OBA-26A
	Sample Date:	4/19/2021	4/19/2021	4/21/2021	4/23/2021	4/23/2021	4/23/2021	4/26/2021	4/20/2021	4/20/2021	4/20/2021	4/21/2021	4/20/2021	4/21/2021	4/20/202
Volatile Organic Compound Concentrations - SW846 8260C µg/L															
Aliphatic Compounds															
1,1,1-Trichloroethane	ug/l	< 1.0 U	21.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 100 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
1,1,2,2-Tetrachloroethane	ug/l	< 1.0 U	537	32	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	519	505	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
1,1,2-Trichloroethane	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 100 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
1,1-Dichloroethene	ug/l	< 1.0 U	27.3 JH	1.4 JH	< 1.0 U	3.0 JH	2.8 JH	< 10 U	< 1.0 U	< 100 U	164 JH	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
Carbon tetrachloride	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 100 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
Chloromethane (Methyl chloride)	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 100 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
cis-1,2-Dichloroethene	ug/l	< 1.0 U	3200	358	2.0	194	183	< 10 U	1.3	5920	6520	5.6	3.6	3.4	1.7
Methylene chloride (Dichloromethane)	ug/l	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 100 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
Tetrachloroethene (PCE)	ug/l	< 1.0 U	4170	2.7	4.0	154	137	< 10 U	4.0	79200	95400	11.7	2.6	2.6	< 1.0
trans-1,2-Dichloroethene	ug/l	< 1.0 U	173	18.5	< 1.0 U	3.4	3.4	< 10 U	< 1.0 U	105	117	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0
Trichloroethene (TCE)	ug/l	< 1.0 U	8800	11.9	5.4	194	191	< 10 U	12.6	80000	88400	22.8	1.8	1.8	1.3
Vinyl chloride	ug/l	< 1.0 U	184	67.4 JH	< 1.0 U	15.7 JH	12.4 JH	< 10 U	< 1.0 U	727	881 JH	< 1.0 U	13.9 JH	13.4 JH	< 1.0
Aromatic Compounds															
1,2,4-Trichlorobenzene	ug/l	1.6	421	31.5	2.6 JH	419	444	803	2.3	14800 J	762 J	1.4	1.2	< 1.0 U	2.5
1,2-Dichlorobenzene	ug/l	< 1.0 U	273	109	< 1.0 U	27.2	26.8	26.3	< 1.0 U	380	395	< 1.0 U	52.4	54.5	< 1.0
1,3-Dichlorobenzene	ug/l	< 1.0 U	161	79.8	< 1.0 U	83.3	82.9	736	< 1.0 U	177 J	102 J	< 1.0 U	43.4	42.8	< 1.0
1,4-Dichlorobenzene	ug/l	< 1.0 U	211	125	< 1.0 U	36.8	36.3	595	1.2	304	378	< 1.0 U	129	126	< 1.0
Benzene	ug/l	< 1.0 U	71.7	2.2	< 1.0 U	4.3	4.2	< 10 U	< 1.0 U	400	445	< 1.0 U	13.9	14.1	< 1.0
Chlorobenzene	ug/l	< 1.0 U	163	62.5	< 1.0 U	14	13.5	87	4.8	174	209	< 1.0 U	353	349	< 1.0
Pesticide Concentrations - SW846 8081B ug/L															
alpha-BHC	ug/l	< 0.05 U	7.3	< 0.05 U	< 0.05 U	0.17	0.14	0.65	< 0.05 U	40.5	49.2	0.1	< 0.05 U	< 0.05 U	< 0.05
beta-BHC	ug/l	< 0.05 U	3.1	0.17	5.3	< 0.05 U	2.2	0.29	0.025 JQ	7.3	7.7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05
delta-BHC	ug/l	< 0.05 U	1.1	0.072	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	4.9	5.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05
gamma-BHC (Lindane)	ug/l	< 0.05 U	2.5	< 0.05 U	< 0.05 U	0.12	0.1	0.18	< 0.05 U	28.8	30.5	0.077	< 0.05 U	< 0.05 U	< 0.05
Total Metal Concentrations - SW846 7470A ug/L															
Mercury	ug/l	< 0.2 U	< 0.2 U	< 0.2 U	9.1	0.7	0.7	< 0.2 U	< 0.2 U	0.13 JQ	0.11 JQ	1.3	< 0.2 U	< 0.2 U	< 0.2
Field Sampling Parameters															
pH - E150.1, pH units	pH units	6.98	7.17	7.27	7.32	7.26	7.26	7.16	6.71	7.19	7.19	7.11	7.09	7.09	6.46
Specific Conductance - E120.1, mS/cm	ms/cm	5.11	2.42	2.0	2.33	8.35	8.35	12.2	12.4	10.2	10.2	12.7	5.16	5.16	9.11
Temperature - E170.1, deg C	deg C	14.33	14.92	10.27	12.72	13.04	13.04	9.02	12.16	12.07	12.07	10.27	11.57	11.57	11.58
Turbidity - E180.1, NTU	NTU	1.8	70.2	0	0	0	0	39.3	9.9	21.5	21.5	4.9	4.6	4.6	19.9

Notes:

deg C = degrees Celcius
mS/cm = microsiemens per centimeter
NTU = nephelometric turbidity units
ug/L - micrograms per liter

Data Qualifier Definitions:

J - Estimated concentration based on QC criteria
JH - Detected, possibly biased high based on QC criteria
JQ - Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL)
U - Constituent not detected above the Reporting Limit shown
UL - The analyte was not detected; however, the reported value may be biased low

Table 4.1: April 2021 Groundwater Analytical Result

Well ID: / Sample Date:		Sample OBA-26B 4/20/2021	Sample PN-3A 4/27/2021	Sample PN-5A 4/27/2021	Sample PN-5B 4/27/2021	Sample PN-7A 4/28/2021	Sample PN-7B 4/27/2021	Sample PN-11A 4/29/2021	Sample PN-11B 4/29/2021	Sample PN-12B 4/26/2021	Sample PN-14A 4/26/2021	Sample PN-15B 4/26/2021	Sample PN-17A 4/23/2021	Duplicate PN-17A 4/23/2021
Volatile Organic Compound Concentrations - SW846 8260C µg/L														
Aliphatic Compounds														
1,1,1-Trichloroethane	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	5.3	< 1.0 U	55.5	< 1.0 U	< 100 U	18.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2,2-Tetrachloroethane	ug/l	< 5.0 U	< 1.0 U	3.6	591 JH	< 1.0 U	< 25 U	< 1.0 U	< 100 U	16	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 1.0 U	< 100 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	14.6	< 1.0 U	121 JH	0.66 JQ	< 100 U	63.7 JH	< 1.0 U	5.9 JH	< 1.0 U	< 1.0 U
Carbon tetrachloride	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 1.0 U	< 100 U	3.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloromethane (Methyl chloride)	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 25 U	< 1.0 UL	< 100 UL	< 1.0 UL	< 1.0 UL	< 1.0 UL	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/l	< 5.0 U	3.3	4.0	858	< 1.0 U	2330	15.8	388	2320	1.0	371	< 1.0 U	< 1.0 U
Methylene chloride (Dichloromethane)	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	379	< 1.0 U	< 100 U	130	< 1.0 U	2.4	< 1.0 U	< 1.0 U
Tetrachloroethene (PCE)	ug/l	< 5.0 U	310	42.3	3670	14.9	13900	44.6	3060	23900	16.7	1440	2.6	2.8
trans-1,2-Dichloroethene	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	20.3	< 1.0 U	52.8	2.9	< 100 U	71.8	< 1.0 U	9.1	< 1.0 U	< 1.0 U
Trichloroethene (TCE)	ug/l	< 5.0 U	152	29.6	3050	5.9	23600	113	5230	19100	10	1340	2.7	3.1
Vinyl chloride	ug/l	< 5.0 U	< 1.0 U	< 1.0 U	72.8 JH	< 1.0 U	252 JH	6.8 JH	< 100 U	639	< 1.0 U	17.7	< 1.0 U	< 1.0 U
Aromatic Compounds														
1,2,4-Trichlorobenzene	ug/l	< 5.0 U	470	114	8350	44.6	7160	60.9	9130	24000	108	28300	20.5 J	7.4 J
1,2-Dichlorobenzene	ug/l	198	36.6	3.2	614	1.7	995	15.3	6340	1280	2.4	1200	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	ug/l	242	37.3	9.5	560	1.9	653	5.1	1030	1790	14.5	2590	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	ug/l	572	25.2	4.4	547	1.7	646	17.5	5740	1050	1.9	775	< 1.0 U	< 1.0 U
Benzene	ug/l	61.7	9.5	< 1.0 U	755	0.48 JQ	2660	2.8	216	1390	< 1.0 U	205 J	< 1.0 U	< 1.0 U
Chlorobenzene	ug/l	1360	20.2	5.6	715	3.4	1520	2.5	409	957	< 1.0 U	175	< 1.0 U	< 1.0 U
Pesticide Concentrations - SW846 8081B ug/L														
alpha-BHC	ug/l	< 0.05 U	9.6	1.8	488 J	1.1	158 J	0.15 J	222 J	95.8	0.33	108	0.052	0.066
beta-BHC	ug/l	< 0.05 U	3.2	0.56	36.5 J	8.3	31.2 J	1.4	20.9 J	59.1	5.8	27.5	0.14	0.13
delta-BHC	ug/l	< 0.05 U	1.1	0.15	332 J	0.37 J	8.7 J	< 0.047 U	3.2 J	3.3	0.082	0.36 J	< 0.05 U	< 0.05 U
gamma-BHC (Lindane)	ug/l	< 0.05 U	7.0	0.57	1090 J	0.87	202 J	0.14 J	166 J	35.3	0.28	3.7	0.035 JQ	0.048 JQ
Total Metal Concentrations - SW846 7470A ug/L														
Mercury	ug/l	< 0.2 U	4.0 JH	< 0.2 U	< 0.2 U	0.22	< 0.2 U	0.088 JQ	< 0.2 U	0.15 JQ	2.3	1.2	0.77	0.84
Field Sampling Parameters														
pH - E150.1, pH units	pH units	6.52	6.58	6.69	6.74	6.98	10.05	11.3	6.86	6.95	7.56	6.98	7.35	7.35
Specific Conductance - E120.1, mS/cm	ms/cm	6.93	1.97	0.952	2.06	1.44	7.22	1.11	2.16	9.24	8.2	4.01	9.71	9.71
Temperature - E170.1, deg C	deg C	12.06	13.05	14.68	16.3	13.4	16.26	11.08	12.24	16.15	12.82	13.9	13.17	13.17
Turbidity - E180.1, NTU	NTU	1.7	83.7	2.9	2.7	4.6	57.9	4.5	0	18.3	4.8	18.4	0.3	0.3

Notes:

deg C = degrees Celcius
mS/cm = microsiemens per centimeter
NTU = nephelometric turbidity units
ug/L - micrograms per liter

Data Qualifier Definitions:

J - Estimated concentration based on QC criteria
JH - Detected, possibly biased high based on QC criteria
JQ - Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL)
U - Constituent not detected above the Reporting Limit shown
UL - The analyte was not detected; however, the reported value may be biased low

Table 4.1: April 2021 Groundwater Analytical Result

		Sample		Sample		Sample		Duplicate		Sample	
Well ID:		PN-17B		PN-20A		PN-20B		PN-20B		PN-24B	
Sample Date:		4/23/2021		4/27/2021		4/27/2021		4/27/2021		4/19/2021	
Volatile Organic Compound Concentrations - SW846 8260C µg/L											
Aliphatic Compounds											
1,1,1-Trichloroethane	ug/l	< 1.0	U	< 1.0	U	< 100	U	< 50	U	< 1.0	U
1,1,2,2-Tetrachloroethane	ug/l	< 1.0	U	< 1.0	U	256		258		< 1.0	U
1,1,2-Trichloroethane	ug/l	< 1.0	U	< 1.0	U	< 100	U	< 50	U	< 1.0	U
1,1-Dichloroethene	ug/l	0.96	JQ	< 1.0	U	< 100	U	< 50	U	< 1.0	U
Carbon tetrachloride	ug/l	< 1.0	U	< 1.0	U	< 100	U	< 50	U	< 1.0	U
Chloromethane (Methyl chloride)	ug/l	< 1.0	U	< 1.0	U	< 100	U	< 50	U	< 1.0	U
cis-1,2-Dichloroethene	ug/l	17.8		< 1.0	U	398		410		8.1	
Methylene chloride (Dichloromethane)	ug/l	< 1.0	U	< 1.0	U	< 100	U	< 50	U	< 1.0	U
Tetrachloroethene (PCE)	ug/l	58.2		21.3		7410		6410		7.0	
trans-1,2-Dichloroethene	ug/l	1.8		< 1.0	U	< 100	U	< 50	U	< 1.0	U
Trichloroethene (TCE)	ug/l	31.1		8.1		3640		3630		4.5	
Vinyl chloride	ug/l	13	JH	< 1.0	U	< 100	U	< 50	U	3.3	
Aromatic Compounds											
1,2,4-Trichlorobenzene	ug/l	108000		641		1430	J	799	J	9.2	
1,2-Dichlorobenzene	ug/l	2640		8.7		101		95.8		1.8	
1,3-Dichlorobenzene	ug/l	3660		14.9		< 100	U	72.8		4.8	
1,4-Dichlorobenzene	ug/l	3010		4.7		111		89.5		7.9	
Benzene	ug/l	75.5		< 1.0	U	< 100	U	< 50	U	< 1.0	U
Chlorobenzene	ug/l	1370		1.5		< 100	U	< 50	U	4.8	
Pesticide Concentrations - SW846 8081B ug/L											
alpha-BHC	ug/l	6.4		1.5		5.0	J	2.7	J	0.06	
beta-BHC	ug/l	15.7		0.51		0.46		0.39		0.061	
delta-BHC	ug/l	0.079	J	0.036	JQ	0.1		0.092		< 0.05	U
gamma-BHC (Lindane)	ug/l	0.21	J	0.49		0.9		0.9		0.029	JQ
Total Metal Concentrations - SW846 7470A ug/L											
Mercury	ug/l	0.3		3.4		< 0.2	U	< 0.2	U	< 0.2	U
Field Sampling Parameters											
pH - E150.1, pH units	pH units	7.14		7.03		6.59		6.59		6.66	
Specific Conductance - E120.1, mS/cm	ms/cm	11.9		1.04		2.26		2.26		1.9	
Temperature - E170.1, deg C	deg C	12.64		13.92		14.27		14.27		11.49	
Turbidity - E180.1, NTU	NTU	3.9		3.7		0		0		4.8	

Notes:

deg C = degrees Celcius
mS/cm = microsiemens per centimeter
NTU = nephelometric turbidity units
ug/L - micrograms per liter

Data Qualifier Definitions:

J - Estimated concentration based on QC criteria
JH - Detected, possibly biased high based on QC criteria
JQ - Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL)
U - Constituent not detected above the Reporting Limit shown
UL - The analyte was not detected; however, the reported value may be biased low

Prepared by: RJB 6/4/2021
Checked By: RMB 6/4/2021

Table 4.2 : October 2021 Groundwater Analytical Results

Sample Type:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Duplicate
Well ID:	OBA-2B	OBA-4A	OBA-4B	OBA-5B	OBA-6B	OBA-24A	OBA-24B	OBA-25A	OBA-25B	OBA-26A	OBA-26B	PN-5B	PN-17B	PN-20A	PN-20A
Sample Date:	10/6/2021	10/8/2021	10/8/2021	10/6/2021	10/11/2021	10/7/2021	10/7/2021	10/7/2021	10/7/2021	10/7/2021	10/7/2021	10/8/2021	10/6/2021	10/6/2021	10/6/2021
Volatile Organic Compound Concentrations - SW846 8260C µg/L															
Aliphatic Compounds															
1,1,1-Trichloroethane	2.0 U	1.0 U	1.0 U	200 U	100 U	1.0 U	100 U	1.0 U	2.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	3.8	1.9	3.2	200 U	100 U	1.0 U	991	1.0 U	2.0 U	1.0 U	10 U	962	1.0 U	2.9	2.6
1,1,2-Trichloroethane	2.0 U	1.0 U	1.0 U	200 U	100 U	1.0 U	100 U	1.0 U	2.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	2.0 U	1.0 U	0.43 JQ	164 JQ	475	1.0 U	89.5 JQ	1.0 U	2.0 U	1.0 U	10 U	50 U	0.48 JQ	1.0 U	1.0 U
Carbon tetrachloride	2.0 U	1.0 U	1.0 U	200 U	100 U	1.0 U	100 U	1.0 U	2.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	2.0 UL	1.0 UL	1.0 UL	200 UL	100 UL	1.0 UL	100 UL	1.0 UL	2.0 UL	1.0 JL	10 UL	50 UL	1.0 UL	1.0 UL	1.0 UL
cis-1,2-Dichloroethene	16.2	2.4	34.5	7220	34900	3.2	7350	6.8	2.2	5.6	10 U	1960	20.7	1.0 U	1.0 U
Methylene chloride (Dichloromethane)	2.0 U	1.0 U	1.0 U	200 U	408	1.0 U	100 U	1.0 U	2.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene (PCE)	98	14.9	218	11700	4950	8.8	88500	6.8	2.0 U	2.7 J	10 U	3400	37.6	13.1	12
trans-1,2-Dichloroethene	2.0 U	1.0 U	1.0 U	200 U	555	1.0 U	116	1.0 U	2.0 U	1.0 U	10 U	50 U	2.3	1.0 U	1.0 U
Trichloroethene (TCE)	53.9	12.1	164	31300	61600	14.3	67500	21.3	2.6	9.1 J	11.7	4530	25.3	4.1	3.7
Vinyl chloride	2.0 UL	1.0 UL	10.5 JL	641 JL	1510 JL	1.0 UL	887 JL	1.0 UL	5.8 JL	1.0 JL	10 UL	123 JL	8.6 JL	1.0 UL	1.0 UL
Aromatic Compounds															
1,2,4-Trichlorobenzene	253	3.8	15.3	6270	2420	9.2	1640	8.4	10.8	10.5	42.2	8480	70200	1.0 U	1.0 U
1,2-Dichlorobenzene	5.9	1.0 U	8.3	451	513	1.8	641	1.3	52.3	1.9	250	728	3310	1.0 U	1.0 U
1,3-Dichlorobenzene	8.9	1.0 U	7.2	1220	283	2.7	151	2.0	32.6	3.2 J	446	622	6370	1.0 U	1.0 U
1,4-Dichlorobenzene	3.8	1.0 U	8.8	970	173	3.6	556	2.8	107	5.3 J	1040	545	4990	1.0 U	1.0 U
Benzene	2.0 U	1.0 U	5.7	2540	2250	1.1	624	0.93 JQ	28.3	1.5 J	20.2	935	63.4	1.0 U	1.0 U
Chlorobenzene	2.0 U	1.0 U	17.8	2150	615	8.7	304	7.7	386	12.9 J	2210	871	1930	1.0 U	1.0 U
Pesticide Concentrations - SW846 8081B µg/L															
alpha-BHC	1.9	253	1.0	92.4	NA	0.13	63.9	0.11	0.099	0.11	0.24	249	5.5	0.05 U	0.05 U
beta-BHC	0.49	27.7	0.18	14	NA	0.13	7.3	0.088	0.05 U	0.085	0.13	59.3	13.6	0.05 U	0.15
delta-BHC	0.11	153	0.05 U	5.0 U	NA	0.05 U	6.7	0.05 U	0.12	0.05 U	0.05 U	153	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	1.1	708	0.97	68.4	NA	0.1	44.7	0.071	0.05 U	0.076	0.16	699	0.078	0.05 U	0.05 U
Total Metal Concentrations - SW846 7470A µg/L															
Mercury	0.2 U	0.2 U	0.2 U	0.13 JQ	NA	0.2 U	0.09 JQ	0.82	0.2 U	0.2 U	0.2 U	0.2 U	0.32	0.2 U	0.2 U
Field Sampling Parameters															
pH	7.62	7.47	7.65	8.52	7.59	7.66	8.21	7.77	8.46	7.49	7.79	7.68	7.8	7.76	7.76
Specific Conductance	3.0	2.32	3.43	11.1	10.3	8.47	9.84	8.84	3.06	8.13	4.63	2.4	13.8	0.721	0.721
Temperature	20.32	20.25	19.49	20.62	18.69	21.66	21.7	20.47	18.72	19.42	17.65	20.62	19.34	18.05	18.05
Turbidity	0	0	33.9	4.2	18.5	0	17.5	0	4.5	4.4	3.6	4.3	0	2.1	2.1

Notes:

pH - standard units
Temperature - degrees Celcius (deg C)
Specific Conductance - microsiemens per centimeter (µs/cm)
Turbidity - nephelometric turbidity units (NTU)
µg/L - micrograms per liter

Data Qualifier Definitions:

J = Estimated concentration based on QC criteria
JL = Detected, possibly biased low based on QC criteria
JQ = Detected between the Method Detection Limit (MDL) and the Reporting Limit (RL)
U = Constituent not detected above the Reporting Limit shown
UL = Constituent not detected, estimated based on QC criteria

Table 4.2 : October 2021 Groundwater Analytical Results

Sample Type: / Well ID: / Sample Date:	Sample PN-20B 10/5/2021		Duplicate PN-20B 10/5/2021		Sample PN-24B 10/6/2021	
Volatile Organic Compound Concentrations - SW846 8260C µg/L						
Aliphatic Compounds						
1,1,1-Trichloroethane	50	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	447		410		1.0	U
1,1,2-Trichloroethane	50	U	1.0	U	1.0	U
1,1-Dichloroethene	50	U	4.3		1.0	U
Carbon tetrachloride	50	U	8.4		1.0	U
Chloromethane (Methyl chloride)	50	UL	1.0	UL	1.0	UL
cis-1,2-Dichloroethene	886		821		10.8	
Methylene chloride (Dichloromethane)	50	U	1.0	U	1.0	U
Tetrachloroethene (PCE)	7590	J	5590	J	7.3	
trans-1,2-Dichloroethene	50	U	9.5		1.0	U
Trichloroethene (TCE)	4440		3690		5.4	
Vinyl chloride	50	UL	42.2	JL	2.7	JL
Aromatic Compounds						
1,2,4-Trichlorobenzene	207	J	73.3	J	33.8	
1,2-Dichlorobenzene	109		85.4		5.4	
1,3-Dichlorobenzene	58.8		44.4		8.6	
1,4-Dichlorobenzene	109	J	73	J	10	
Benzene	50	U	2.8		0.85	JQ
Chlorobenzene	50	U	21.5		10.2	
Pesticide Concentrations - SW846 8081B µg/L						
alpha-BHC	1.1		1.4		0.1	
beta-BHC	0.27		0.22		0.21	
delta-BHC	0.21		0.17		0.05	U
gamma-BHC (Lindane)	0.84		1.1		0.05	U
Total Metal Concentrations - SW846 7470A µg/L						
Mercury	0.2	U	0.2	U	0.2	U
Field Sampling Parameters						
pH	7.48		7.48		7.55	
Specific Conductance	1.98		1.98		1.5	
Temperature	18.36		18.36		20.21	
Turbidity	4.2		4.2		18.8	

Notes:
pH - standard units
Temperature - degrees Celcius (deg C)
Specific Conductance - microsiemens per centimeter (µs/cm)
Turbidity - nephelometric turbidity units (NTU)
µg/L - micrograms per liter

Data Qualifier Definitions:
J = Estimated concentration based on QC criteria
JL = Detected, possibly biased low based on QC criteria
JQ = Detected between the Method Detection Limit (MDL) and the Reporting
U = Constituent not detected above the Reporting Limit shown
UL = Constituent not detected, estimated based on QC criteria

Prepared by: RMB 1/19/22
Checked by: RJB 1/19/22

Figures

Note:
* - well dry or groundwater elevation below A-Zone bottom elevation.
A-Zone bottom elevation shown and used for contouring.

Buffalo Avenue

OBA-11A 558.76
OBA-18A 560.32
OBA-19A 561.86
OBA-8A 562.34
OBA-1A 568.07
OBA-7A 566.18
OBA-5A 564.17
OBA-16A 562.95
RW-2-PZ 559.03*
PN-2A 562.87
PN-9A 561.39
PN-10A 561.88
OBA-2A 561.32*
OBA-23A 562.58
PR-2 561.17*
OBA-15A 556.63
PN-20A 561.68
OW-5A 560.80
OW-21A DRY
OBA-3A 556.41
OW-20A 560.64
OW-22A DRY
OW-6A 561.35
PN-18A 563.78
PN-19A 563.61
RW-1-PZ NM
PN-16A 563.26
PN-1A NM
PN-17A 565.60
PR-1 563.64
PN-15A 563.14
PN-14A 564.96
OBA-6A 564.17
PN-13A 564.77
PN-12A 565.25
PN-21A 564.73
PR-3 557.65*
RW-3-PZ 556.69*
PN-4A 561.40
PR-4-PZ 556.65
PR-13 559.15
OBA-14A 555.62
PN-3A 563.01
PR-6 559.35*
PN-5A 561.69
RW-4-PZ 557.05*
PR-14 562.55
OBA-4A 561.17
PR-7 560.37
PN-6A 561.88
OBA-26A 563.25
PR-8 558.91*
PR-5 558.47*
PN-7A 562.43
PR-9 561.69
PR-10 561.18
RW-5-PZ 557.94
PR-11 563.75
OBA-25A 563.81
PN-8A 564.26
PR-12 563.40
PN-11A 562.85*
OBA-9AR 562.68
OBA-9A 562.83
OBA-24A 563.10
OBA-10A 562.54
GillCreek-StillWell 562.87

559 559.5 560 560.5 561 561.5 562 562.5 563 563.5 564 564.5 565 565.5 566 566.5 567 567.5

Feet
0 100 200

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Surface Water Monitoring Location
- Solvent Monitoring Well
- Potentiometric Surface Contour
- Groundwater Flow Direction
- Gill Creek
- Approximate Olin Property Boundary

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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A-Zone Potentiometric Contours - Site Wide April 22, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/18/2022	wood.	Figure: 3.1a
Checked by/Date: AWE 3/18/2022		
Project Number: 6107210002		

Note:
* - well dry or groundwater elevation below A-Zone bottom elevation. A-Zone bottom elevation shown and used for contouring.

Buffalo Avenue

OBA-18A 560.28
OBA-11A 559.84
OBA-19A 562.68
OBA-8A 562.34
OBA-1A 568.27
OBA-7A 565.78
OBA-16A 560.42*
RW-2-PZ 559.03*
OBA-2A 563.09
PN-2A 561.41*
PN-18A 563.08
PN-10A 561.35*
PR-2 561.17*
OBA-23A 561.99
PN-19A 563.29
RW-1-PZ 560.93*
PN-1A 564.06
PN-17A 565.65
PR-1 563.29
PR-13 559.15*
PR-6 559.35*
PN-15A 563.24
RW-4-PZ 557.05*
PR-7 563.52
PN-14A 563.85
OBA-6A 564.27
PN-13A 563.4
PN-12A 564.28
PR-14 559.10
PR-5 558.47*
PR-10 562.21
PN-21A 564.73
PR-11 NM
OBA-5A 564.22
PN-8A 564.61
PR-12 563.60
OBA-9AR 562.82
OBA-9A 562.74
PN-20A 561.65
PN-9A 560.54
OBA-15A 555.64
OW-21A DRY
OW-5A DRY
OBA-3A 555.52
OW-20A DRY
OW-22A DRY
OW-6A 562.41
PR-3 557.65*
PN-3A 563.05
RW-3-PZ 556.69*
PN-16A 563.09
PN-4A 561.30
PR-4-PZ 556.65
OBA-4A 561.67
OBA-14A 556.06
PN-5A 562.00
PN-6A 562.13
PR-8 558.91*
OBA-26A 563.35
PR-9 562.39
PN-7A 562.53
RW-5-PZ 557.69*
PN-11A 562.92
OBA-25A 563.87
OBA-24A 563.46
OBA-10A 562.89
GillCreek-StillWell 562.8

560 560.5 561 561.5 562 562.5 563 563.5 564 564.5 565 565.5 566 566.5 567 567.5 568 567.5 567 566.5 566 565.5 565 564.5 564 563.5 563 562.5 562 561.5 561 562 562.5 563 563.5 564 564.5 565 565.5 565.5 565 564.5

Feet
0 100 200

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Surface Water Monitoring Location
- Solvent Monitoring Well
- Potentiometric Surface Contour
- Groundwater Flow Direction
- Gill Creek
- Approximate Olin Property Boundary

A-Zone Potentiometric Contours - Site Wide October 4, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/16/2022	wood.	Figure: 3.1b
Checked by/Date: AWE 3/16/2022		
Project Number: 6107210002		

Document Path: G:\olin_niagra\2021_Annual_Report\MXD\A_Zone_Pot_Map_Oct_2021.mxd

Buffalo Avenue

OBA-11B 557.36
OBA-8B 558.34
OBA-1B 558.95
PN-2B 556.54
PN-10B 558.28
OBA-23B 558.34
RW-1-PZ NM
PN-1B 558.22
PN-17B 558.19
PN-15B 555.04
OBA-2B 556.71
RW-2-PZ 559.03
PN-24B 557.06
PN-9B 556.63
PN-20B 556.29
RW-3-PZ 556.69
OW-15B 557.09
OW-31B 557.28
OW-14B 556.92
OW-32B 556.94
OW-23B 556.6
OW-22B 552.65
OW-33B 556.72
PN-4B 556.66
PR-4-PZ 556.65
OBA-16B 557.35
PW-3B 556.71
OW-25B 557.08
PW-4B 555.61
PN-3B 557.39
OBA-4B 558.24
OW-24B 556.84
OBA-14B 556.31
OW-4B 557.02
RW-4-PZ 557.05
PN-6B 556.51
PN-7B 557.35
RW-5-PZ 557.94
PN-13B 557.54
PN-12B 555.64
OBA-5B 560.59
OBA-26B 557.46
PN-21B 559.44
PN-8B 556.70
PN-11B 557.78
OBA-24B 557.41
OBA-25B 557.33

558 558.5 557.5 559 559.5 560 557 555.5 555 554.5 554 556.5 556

Legend

- Monitoring Well
- Passive Relief Well
- Recovery Well
- Solvent Monitoring Well
- Solvent Recovery Well
- Potentiometric Surface Contour
- Groundwater Flow Direction
- Gill Creek
- Approximate Olin Property Boundary

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 100 200 Feet

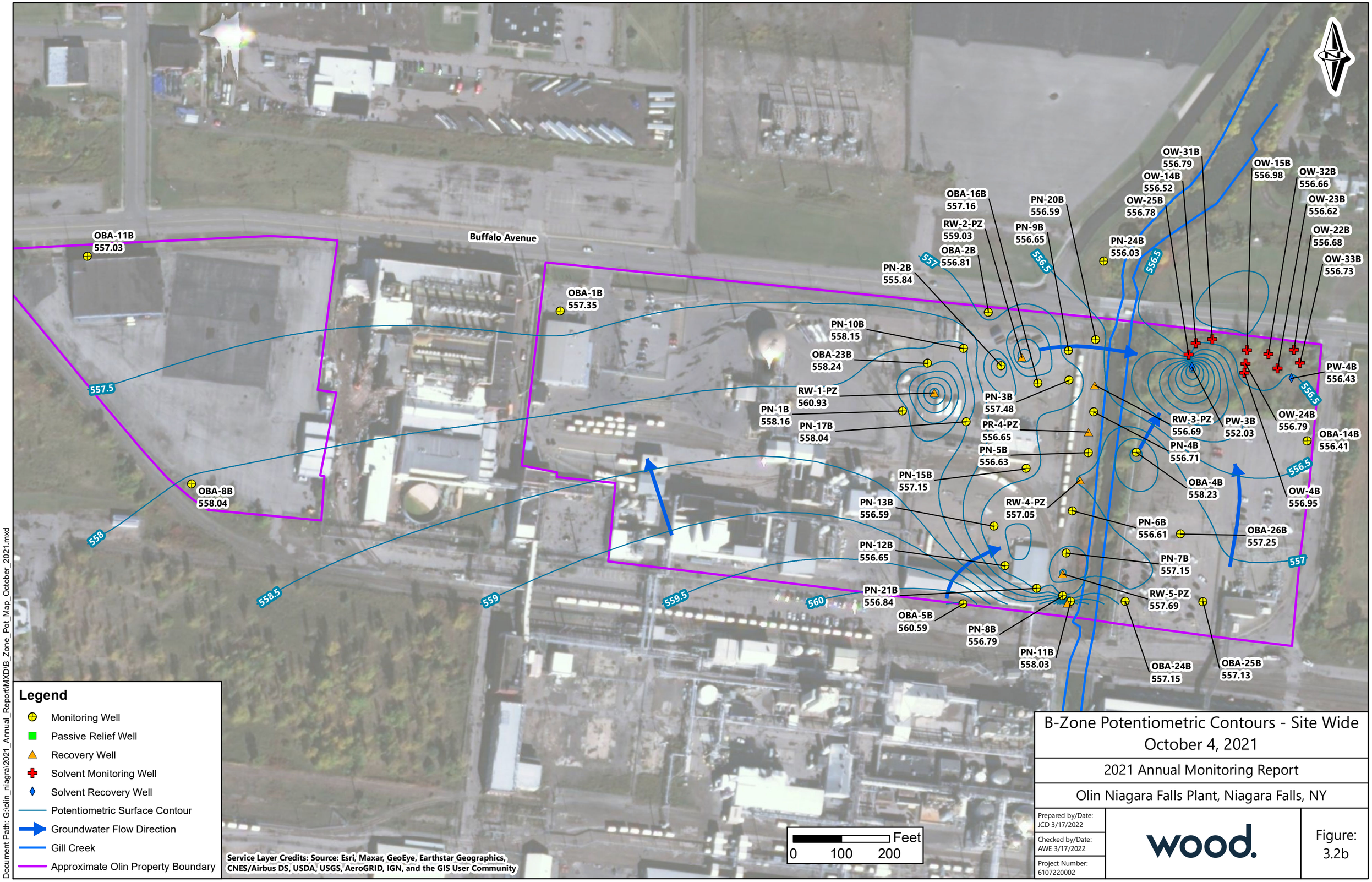
B-Zone Potentiometric Contours - Site Wide April 22, 2021

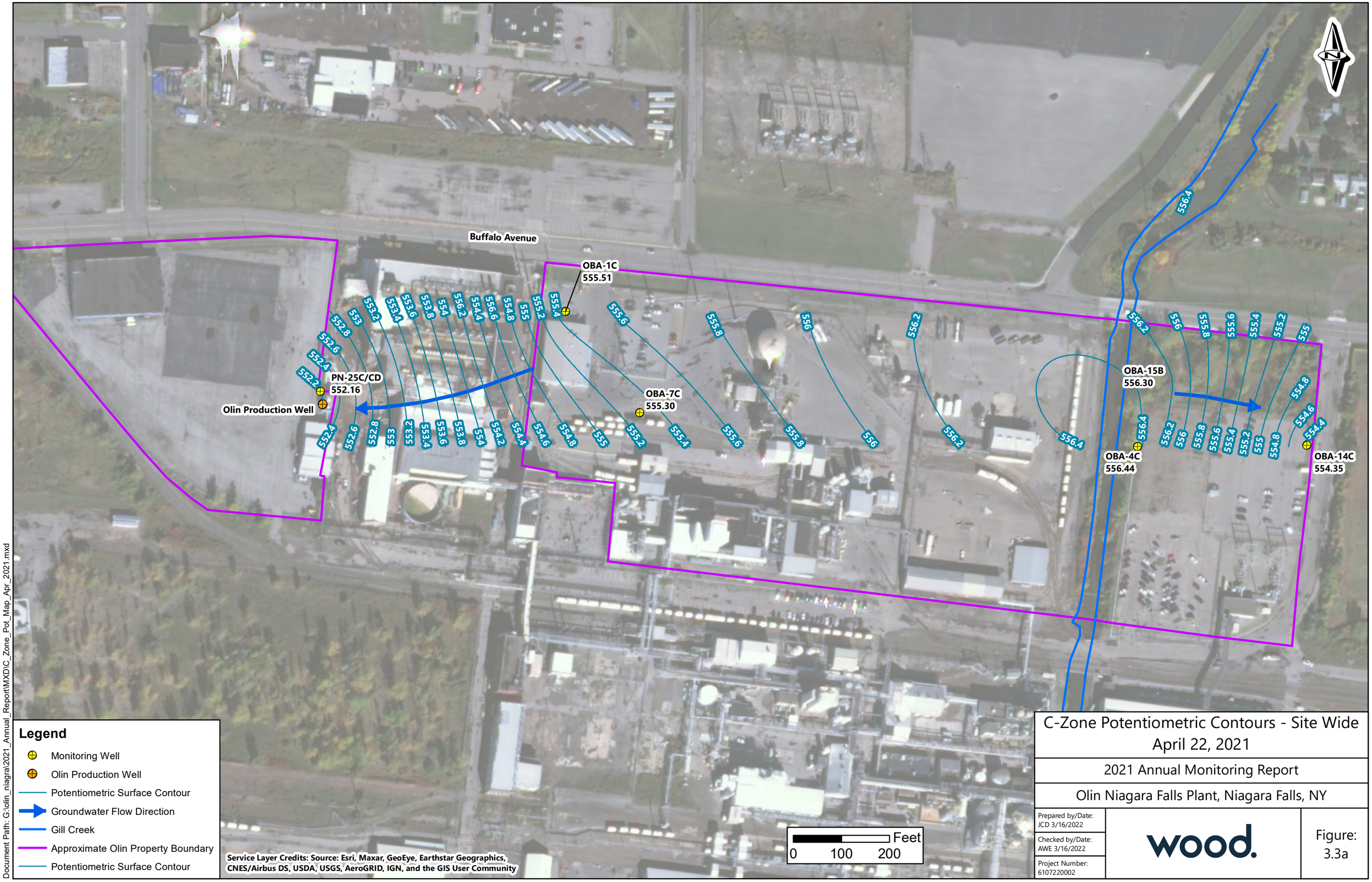
2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/18/2022	wood.	Figure: 3.2a
Checked by/Date: AWE 3/18/2022		
Project Number: 6107220002		

Document Path: G:\olin_niagra\2021_Annual_Report\MXD\B_Zone_Pot_Map_Apr_2021.mxd


Buffalo Avenue
OBA-11B
557.03
OBA-1B
557.35
OBA-8B
558.04
OBA-16B
557.16
RW-2-PZ
559.03
OBA-2B
556.81
PN-2B
555.84
PN-20B
556.59
PN-9B
556.65
PN-24B
556.03
OW-31B
556.79
OW-14B
556.52
OW-25B
556.78
OW-15B
556.98
OW-32B
556.66
OW-23B
556.62
OW-22B
556.68
OW-33B
556.73
PW-4B
556.43
OW-24B
556.79
OBA-14B
556.41
OW-4B
556.95
PN-10B
558.15
OBA-23B
558.24
RW-1-PZ
560.93
PN-1B
558.16
PN-17B
558.04
PN-3B
557.48
PR-4-PZ
556.65
PN-5B
556.63
RW-3-PZ
556.69
PW-3B
552.03
PN-4B
556.71
OBA-4B
558.23
PN-15B
557.15
PN-13B
556.59
RW-4-PZ
557.05
PN-6B
556.61
OBA-26B
557.25
PN-12B
556.65
PN-7B
557.15
PN-21B
556.84
RW-5-PZ
557.69
OBA-5B
560.59
PN-8B
556.79
PN-11B
558.03
OBA-24B
557.15
OBA-25B
557.13
557.5
558
558.5
559
559.5
560
557
556.5
556.5
556.5
556.5
557
Legend
Monitoring Well
Passive Relief Well
Recovery Well
Solvent Monitoring Well
Solvent Recovery Well
Potentiometric Surface Contour
Groundwater Flow Direction
Gill Creek
Approximate Olin Property Boundary
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Feet
0
100
200
B-Zone Potentiometric Contours - Site Wide
October 4, 2021
2021 Annual Monitoring Report
Olin Niagara Falls Plant, Niagara Falls, NY
Prepared by/Date: JCD 3/17/2022
Checked by/Date: AWE 3/17/2022
Project Number: 6107220002
wood.
Figure: 3.2b
Document Path: G:\olin_niagra\2021_Annual_Report\MXD\B_Zone_Pot_Map_October_2021.mxd



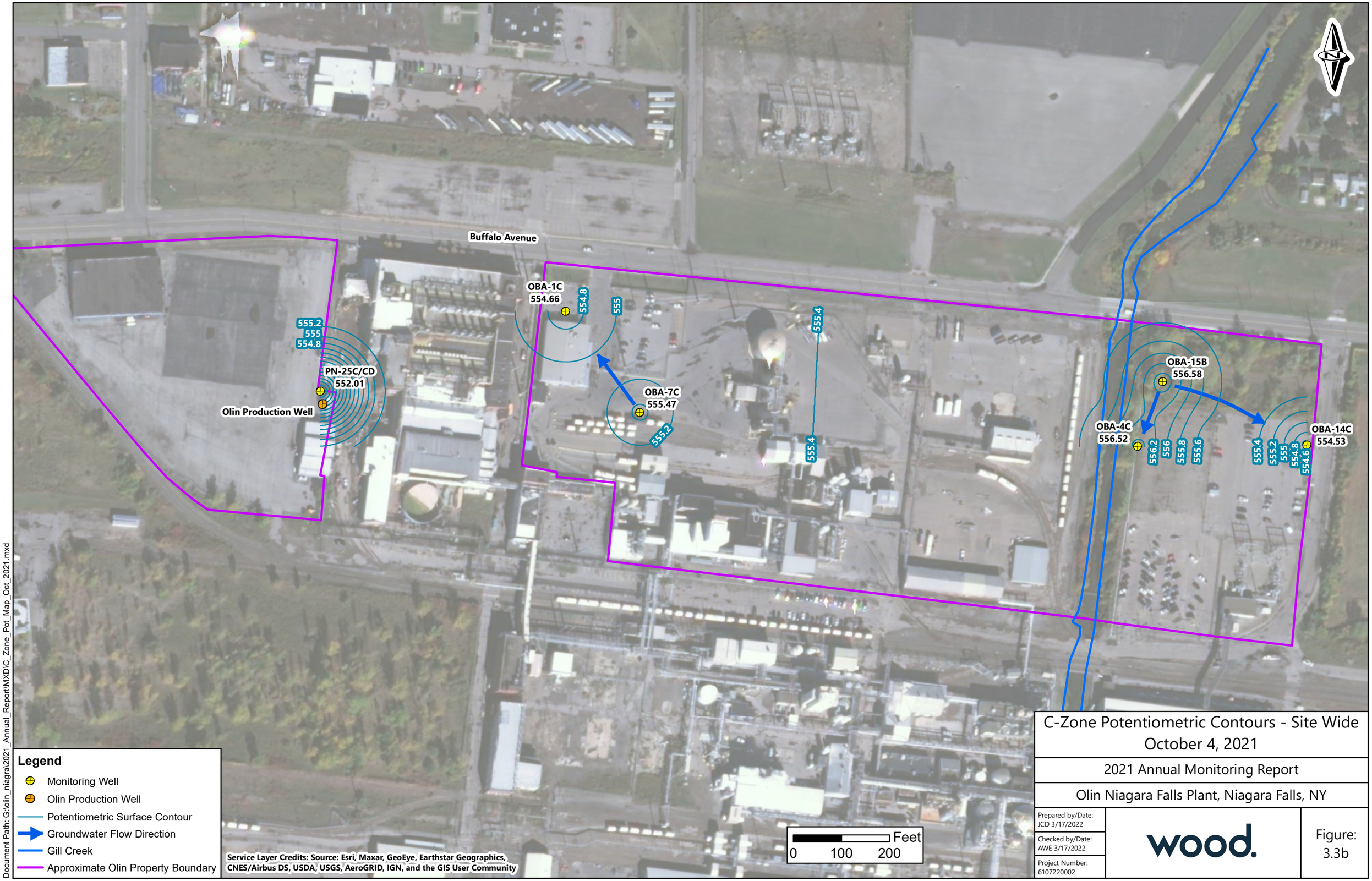
Document Path: G:\olin_niagra\2021_Annual_Report\MXD\C_Zone_Pot_Map_Apr_2021.mxd

C-Zone Potentiometric Contours - Site Wide April 22, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/16/2022	wood.	Figure: 3.3a
Checked by/Date: AWE 3/16/2022		
Project Number: 6107220002		



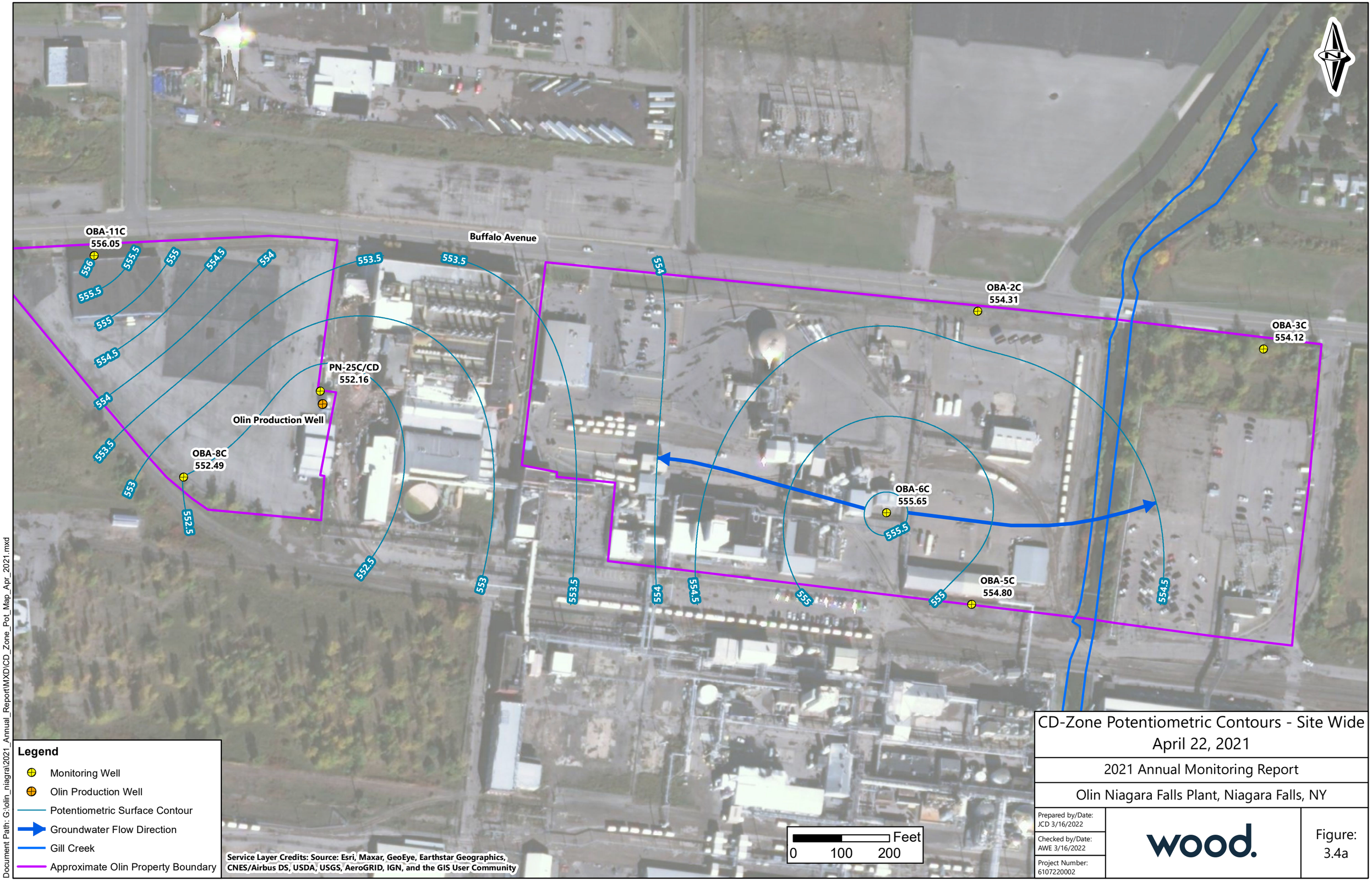
Document Path: G:\olin_niagra\2021_Annual_Report\MXD\C_Zone_Pot_Map_Oct_2021.mxd

C-Zone Potentiometric Contours - Site Wide October 4, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/17/2022	wood.	Figure: 3.3b
Checked by/Date: AWE 3/17/2022		
Project Number: 6107220002		



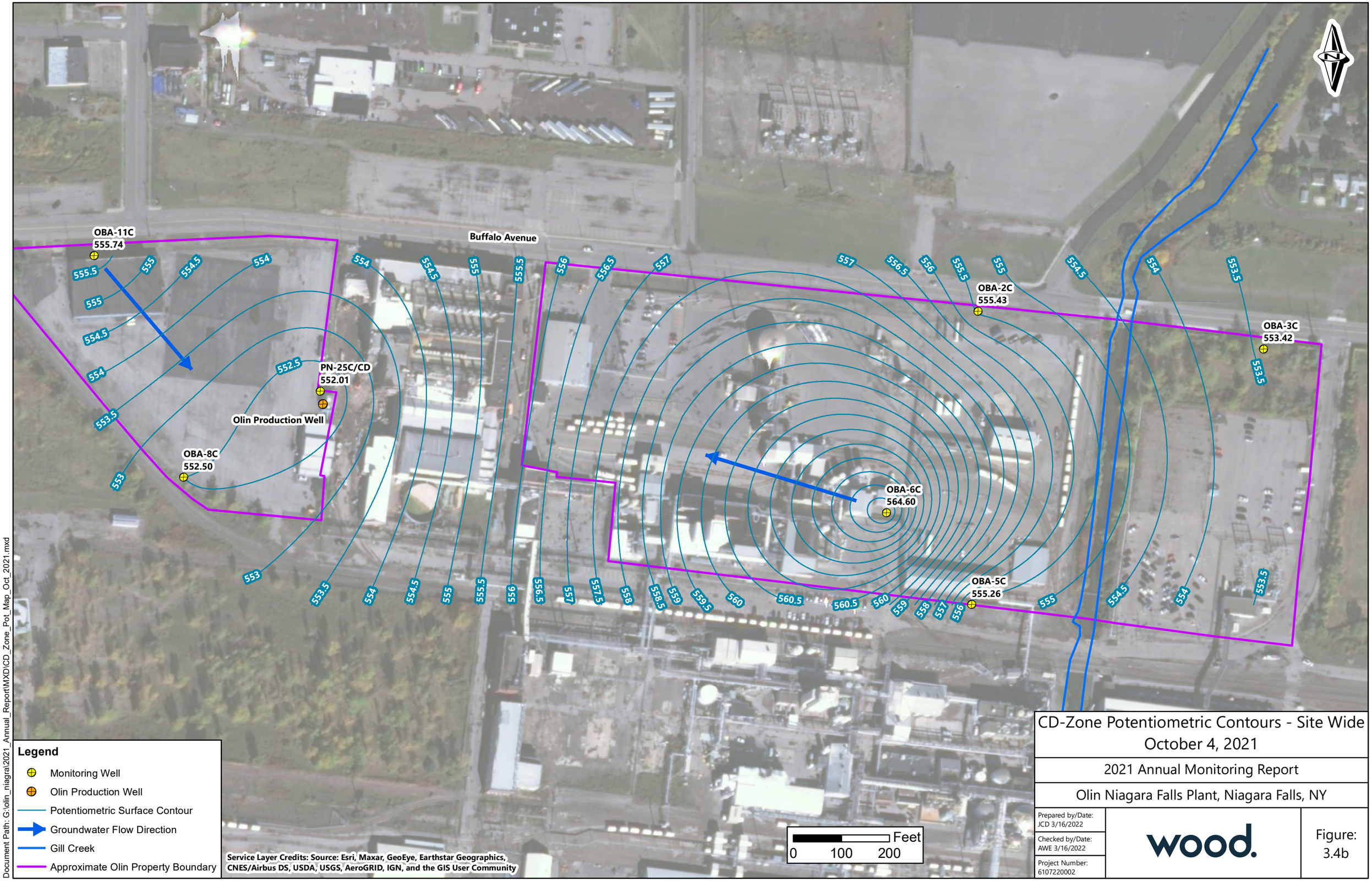
CD-Zone Potentiometric Contours - Site Wide
April 22, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/16/2022	wood.	Figure: 3.4a
Checked by/Date: AWE 3/16/2022		
Project Number: 6107220002		

Document Path: G:\olin_niagra\2021_Annual_Report\MXD\CD_Zone_Pot_Map_Apr_2021.mxd



Document Path: G:\olin_niagra\2021_Annual_Report\MXD\CD_Zone_Pot_Map_Oct_2021.mxd

CD-Zone Potentiometric Contours - Site Wide October 4, 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared by/Date: JCD 3/16/2022	wood.	Figure: 3.4b
Checked by/Date: AWE 3/16/2022		
Project Number: 6107220002		

Buffalo Avenue

OBA-1A
53.3

OBA-8A
26.1

PN-20A
641

OBA-15A
31.5

OBA-3A
22.9

OBA-16A
2.6

PN-3A
470

PN-17A
20.5

PN-5A
114

OBA-4A
3.6

OBA-14A
1.6

PN-14A
108

OBA-26A
2.5

PN-7A
44.6

OBA-5A
4270

PN-11A
60.9

OBA-24A
2.3

OBA-25A
1.4

OBA-10A
4130

Legend

1,2,4 Trichlorobenzene (µg/L)

- 0.5 - 5
- 5 - 50
- 50 - 500
- 500 - 5000
- 5000 - 50000
- Gill Creek
- Approximate Olin Boundary

0 100 200 Feet

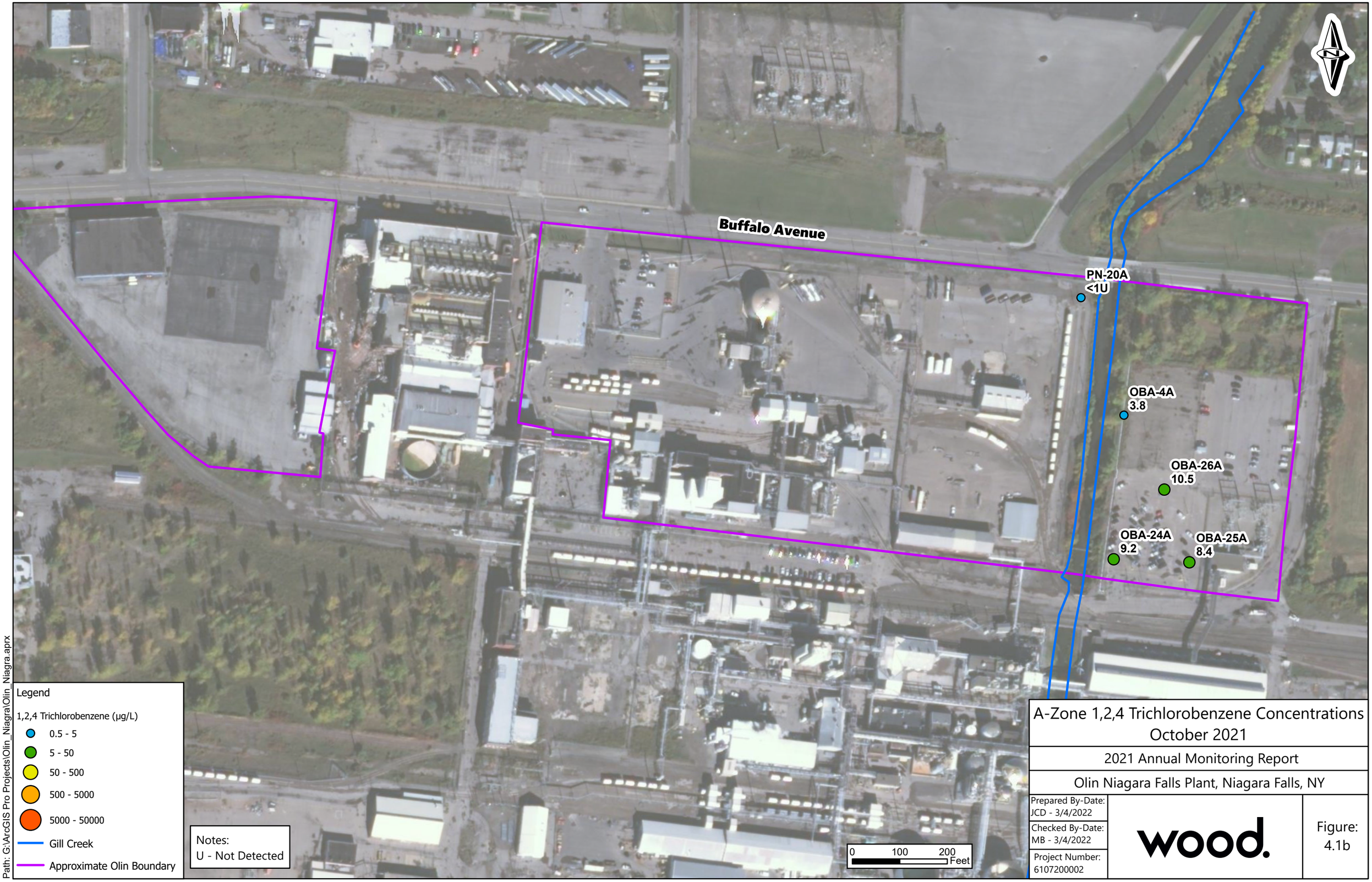
Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

A-Zone 1,2,4 Trichlorobenzene Concentrations April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/4/2022	wood.
Checked By-Date: MB - 3/4/2022	Figure: 4.1a
Project Number: 6107200002	

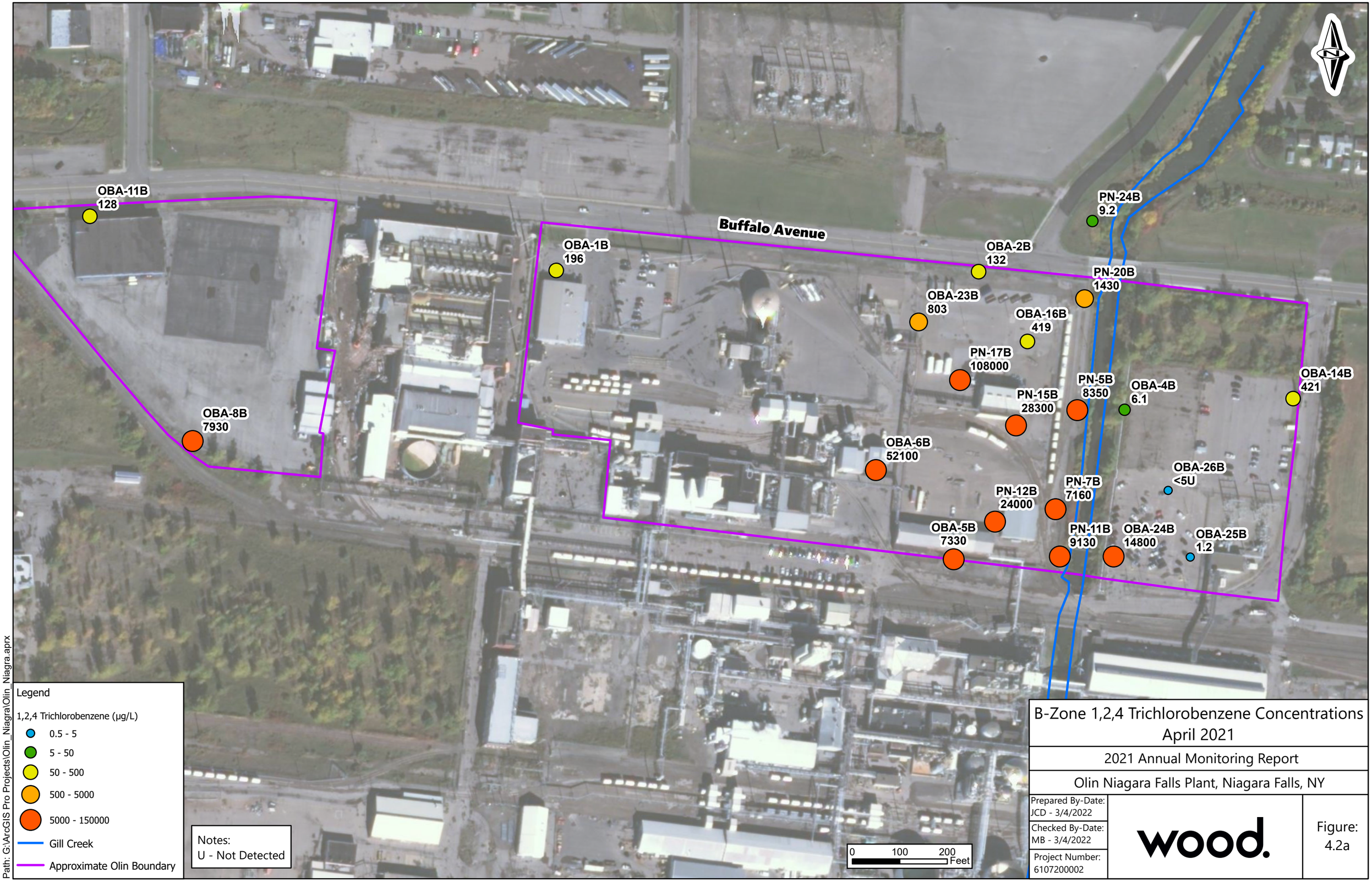


A-Zone 1,2,4 Trichlorobenzene Concentrations October 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/4/2022	wood.	Figure: 4.1b
Checked By-Date: MB - 3/4/2022		
Project Number: 6107200002		



Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

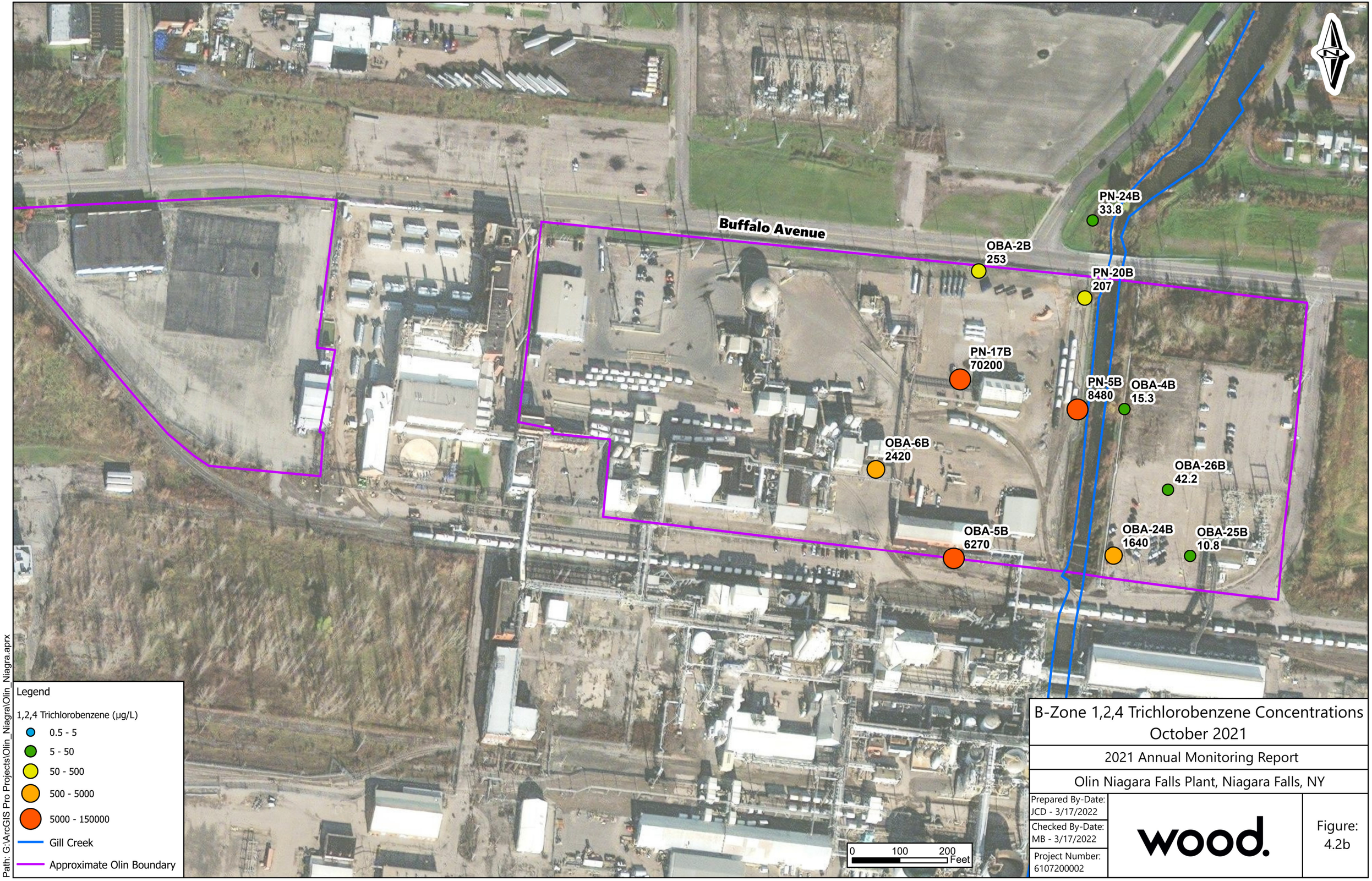
B-Zone 1,2,4 Trichlorobenzene Concentrations April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/4/2022	Figure: 4.2a
Checked By-Date: MB - 3/4/2022	
Project Number: 6107200002	

wood.



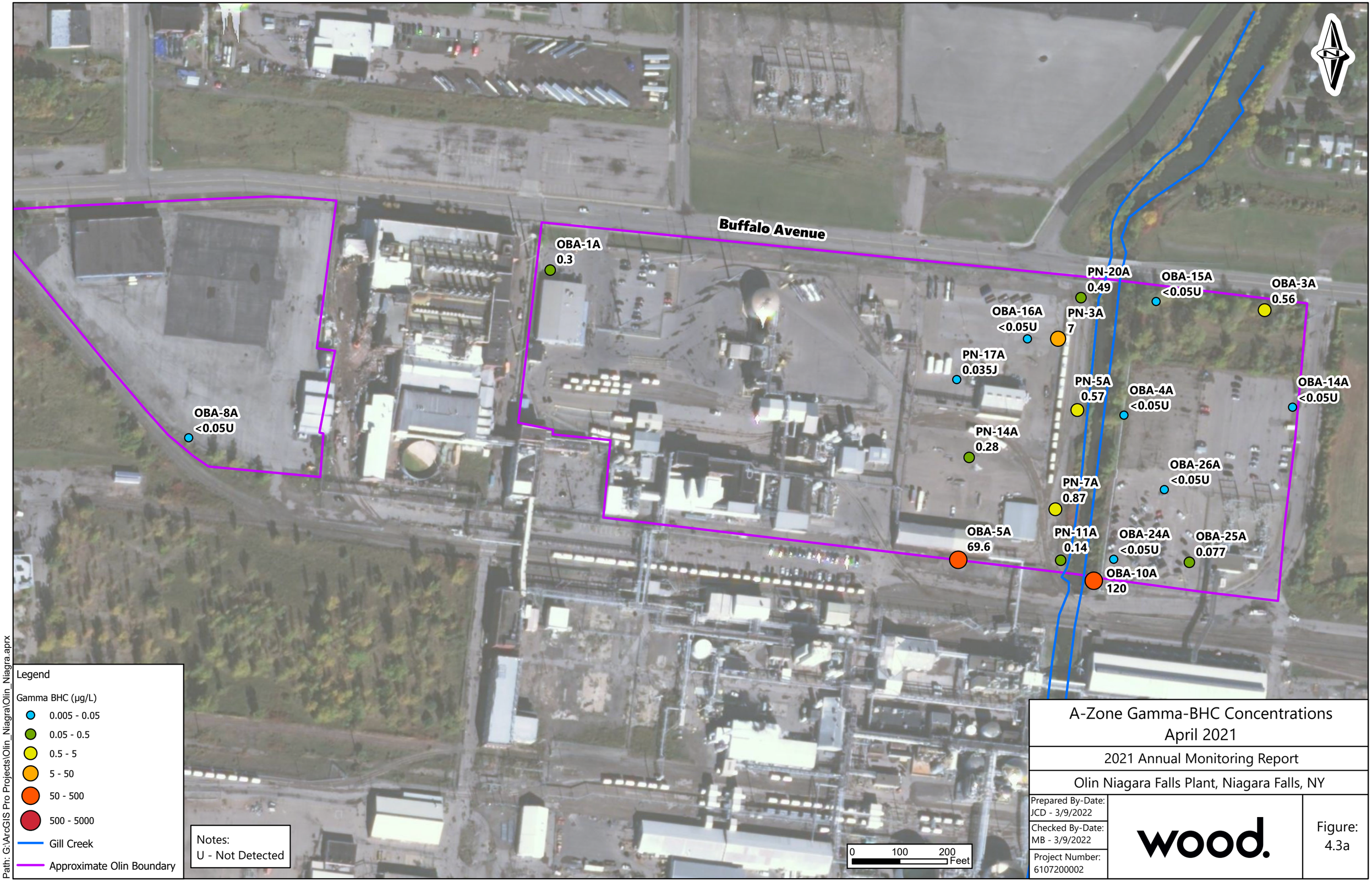
Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

B-Zone 1,2,4 Trichlorobenzene Concentrations October 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/17/2022	
Checked By-Date: MB - 3/17/2022	wood.
Project Number: 6107200002	Figure: 4.2b



Legend

Gamma BHC (µg/L)

- 0.005 - 0.05
- 0.05 - 0.5
- 0.5 - 5
- 5 - 50
- 50 - 500
- 500 - 5000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

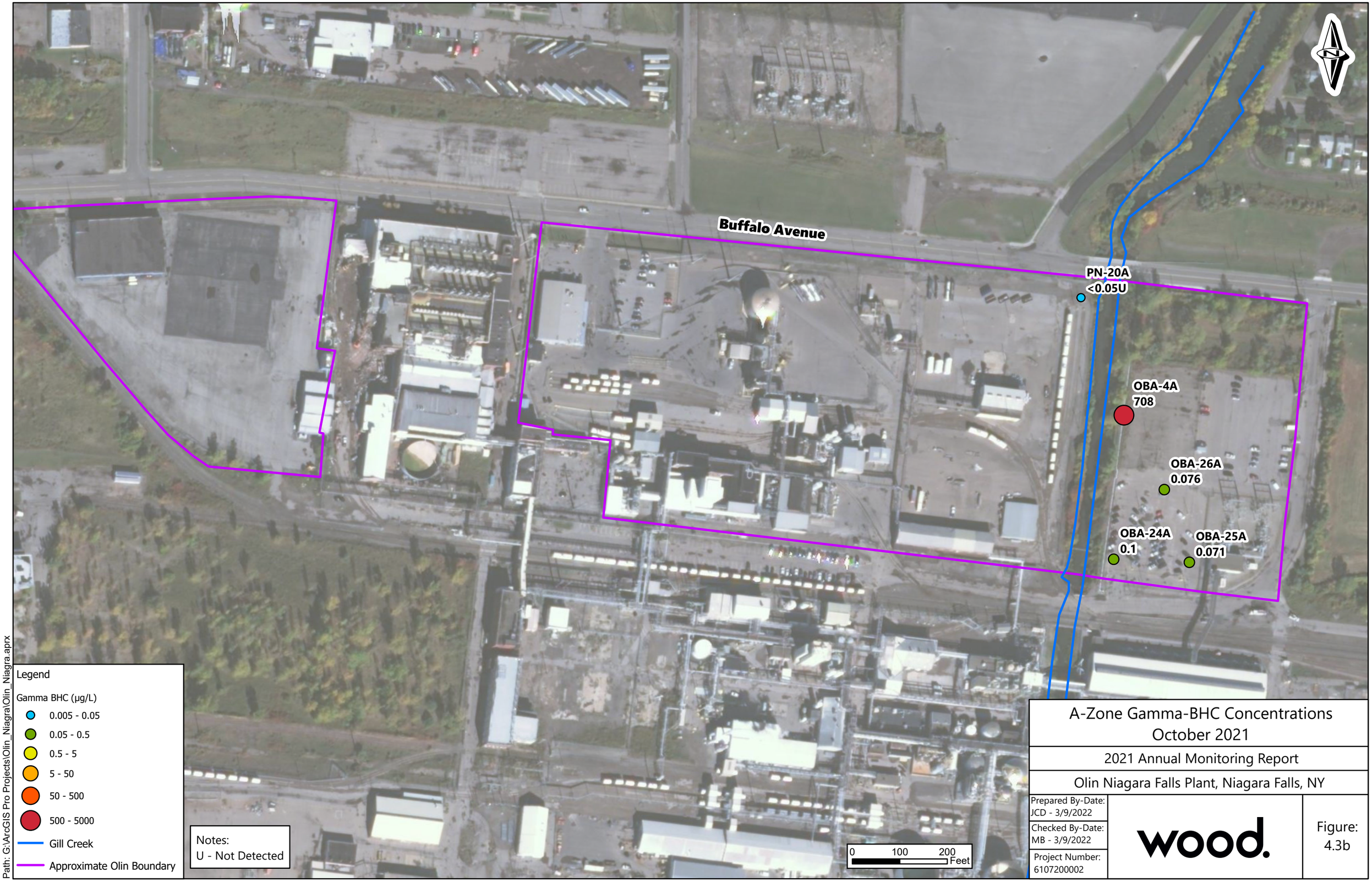
A-Zone Gamma-BHC Concentrations April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/9/2022	Figure: 4.3a
Checked By-Date: MB - 3/9/2022	
Project Number: 6107200002	

wood.



Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

A-Zone Gamma-BHC Concentrations October 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/9/2022	Figure: 4.3b
Checked By-Date: MB - 3/9/2022	
Project Number: 6107200002	

wood.

OBA-11B
<0.05U

OBA-1B
71

Buffalo Avenue

OBA-2B
0.077

PN-24B
0.029JQ

PN-20B
0.9

OBA-23B
0.18

OBA-16B
0.12

PN-17B
0.21

PN-5B
1090

OBA-4B
<0.05U

OBA-14B
2.5

PN-15B
3.7

OBA-8B
<0.05U

OBA-6B
5.4

OBA-26B
<0.05U

PN-7B
202

PN-12B
35.3

OBA-5B
361

PN-11B
166

OBA-24B
28.8

OBA-25B
<0.05U

Legend

Gamma BHC (µg/L)

- 0.005 - 0.05
- 0.05 - 0.5
- 0.5 - 5
- 5 - 50
- 50 - 500
- 500 - 5000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected
J - Estimated Value
Q - Value is between detection limit and method detection limit

0 100 200 Feet

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

B-Zone Gamma-BHC Concentrations April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/9/2022	
Checked By-Date: MB - 3/9/2022	wood.
Project Number: 6107200002	Figure: 4.4a

Buffalo Avenue

PN-24B
<0.05U

OBA-2B
1.1

PN-20B
0.84

PN-17B
0.078

PN-5B
699

OBA-4B
0.97

OBA-26B
0.16

OBA-5B
68.4

OBA-24B
44.7

OBA-25B
<0.05U

Legend

Gamma BHC (µg/L)

- 0.005 - 0.05
- 0.05 - 0.5
- 0.5 - 5
- 5 - 50
- 50 - 500
- 500 - 5000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected

0 100 200 Feet

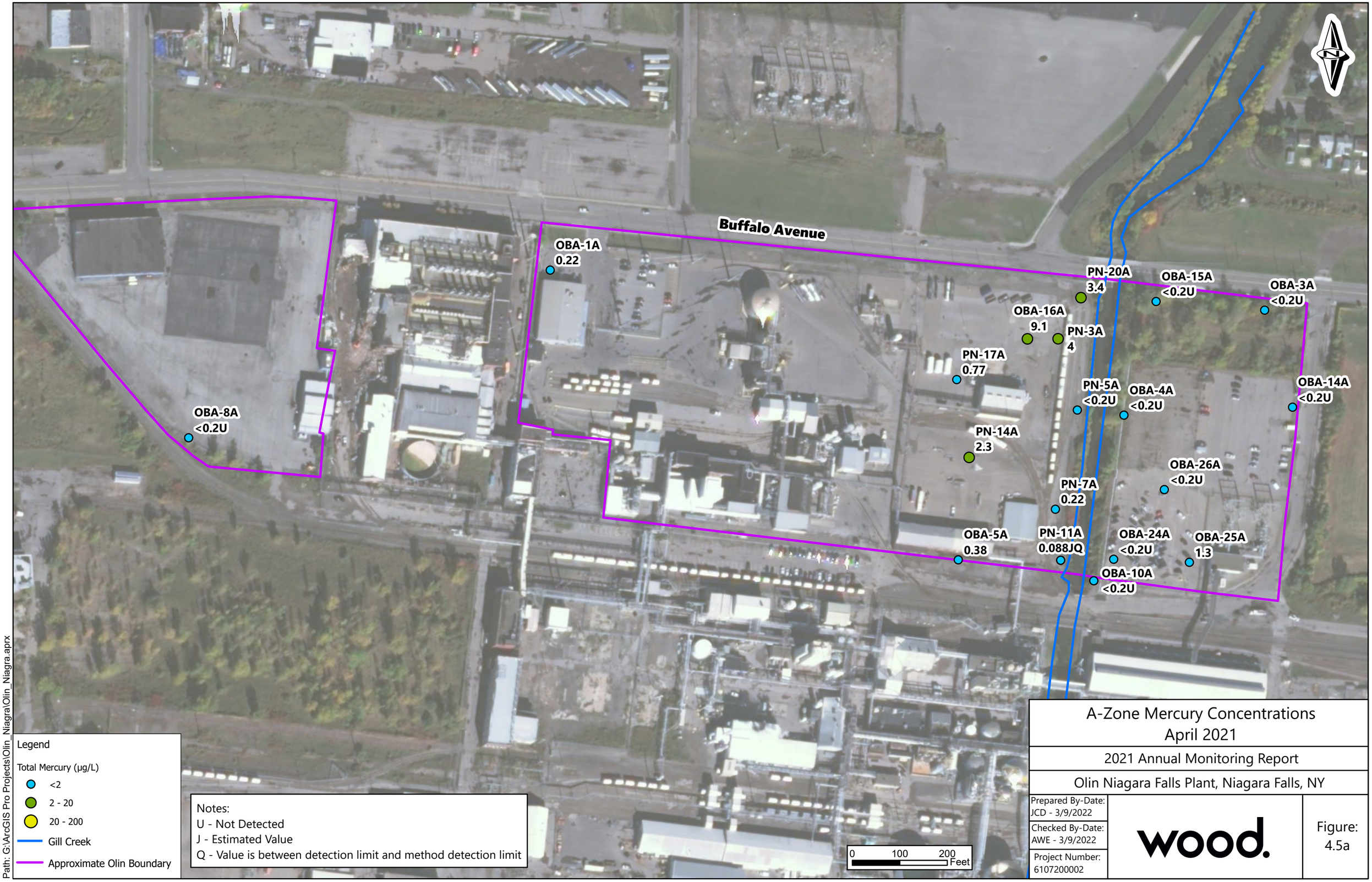
Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

B-Zone Gamma-BHC Concentrations October 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/9/2022	
Checked By-Date: MB - 3/9/2022	wood.
Project Number: 6107200002	Figure: 4.4b



Legend

Total Mercury (µg/L)

- <2
- 2 - 20
- 20 - 200
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected
J - Estimated Value
Q - Value is between detection limit and method detection limit

A-Zone Mercury Concentrations April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date:	JCD - 3/9/2022
Checked By-Date:	AWE - 3/9/2022
Project Number:	6107200002

wood.

Figure: 4.5a

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

Buffalo Avenue

PN-20A
<0.2U

OBA-4A
<0.2U

OBA-26A
<0.2U

OBA-24A
<0.2U

OBA-25A
0.82

Legend

Total Mercury (µg/L)

- 0.2 - 2
- 2 - 20
- 20 - 200
- 200 - 2000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected
J - Estimated Value

0 100 200 Feet

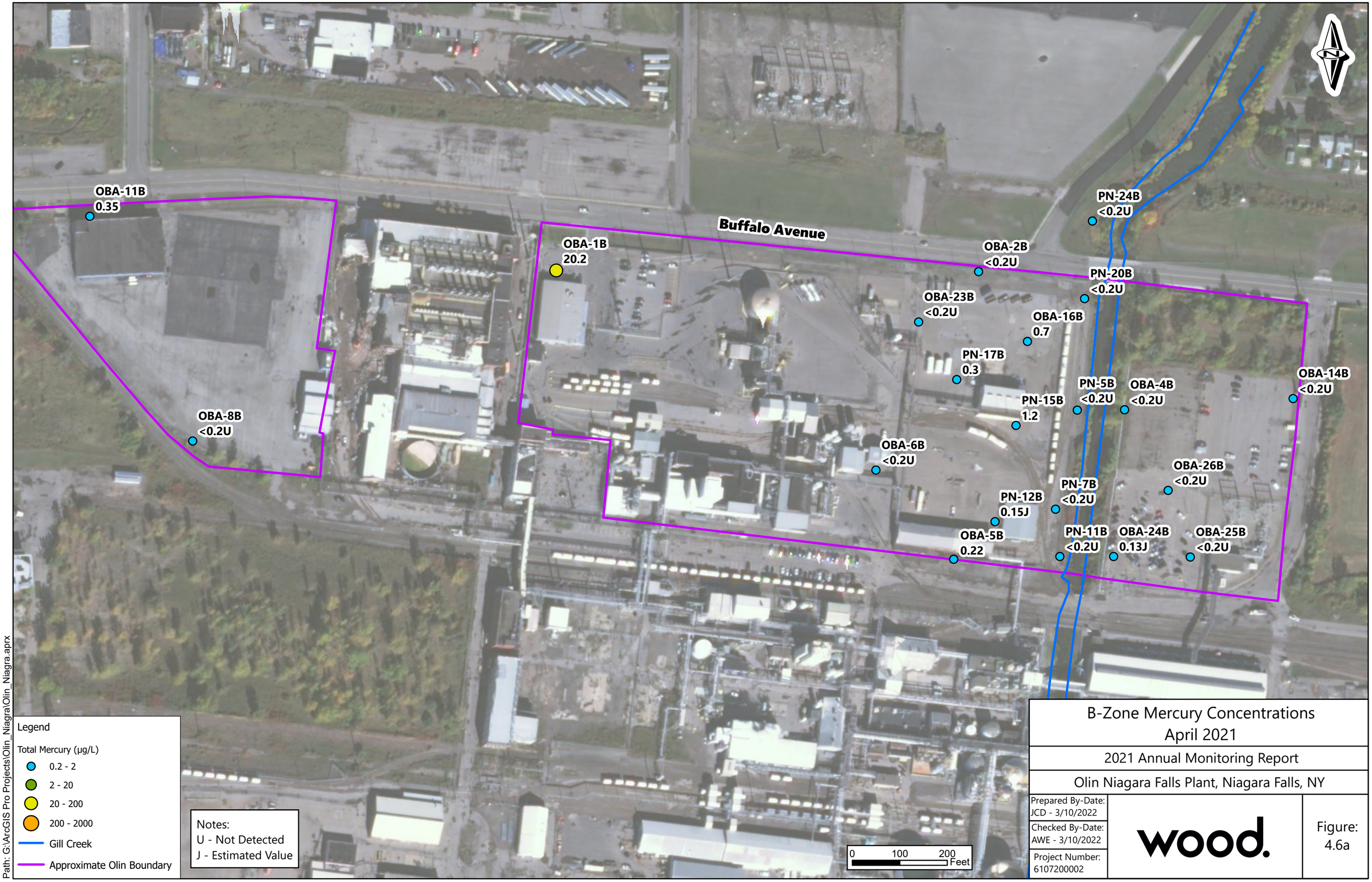
A-Zone Mercury Concentrations October 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/10/2022	
Checked By-Date: MB - 3/10/2022	wood.
Project Number: 6107200002	Figure: 4.5b

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx



Legend

Total Mercury (µg/L)

- 0.2 - 2
- 2 - 20
- 20 - 200
- 200 - 2000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected
J - Estimated Value

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

B-Zone Mercury Concentrations
April 2021

2021 Annual Monitoring Report

Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date:	JCD - 3/10/2022
Checked By-Date:	AWE - 3/10/2022
Project Number:	6107200002

wood.

Figure: 4.6a

Buffalo Avenue

PN-24B
<0.2U

OBA-2B
<0.2U

PN-20B
<0.2U

PN-17B
0.32

PN-5B
<0.2U

OBA-4B
<0.2U

OBA-26B
<0.2U

OBA-25B
<0.2U

OBA-5B
0.13J

Legend

Total Mercury (µg/L)

- 0.2 - 2
- 2 - 20
- 20 - 200
- 200 - 2000
- Gill Creek
- Approximate Olin Boundary

Notes:
U - Not Detected
J - Estimated Value

0 100 200 Feet

B-Zone Mercury Concentrations October 2021

2021 Annual Monitoring Report

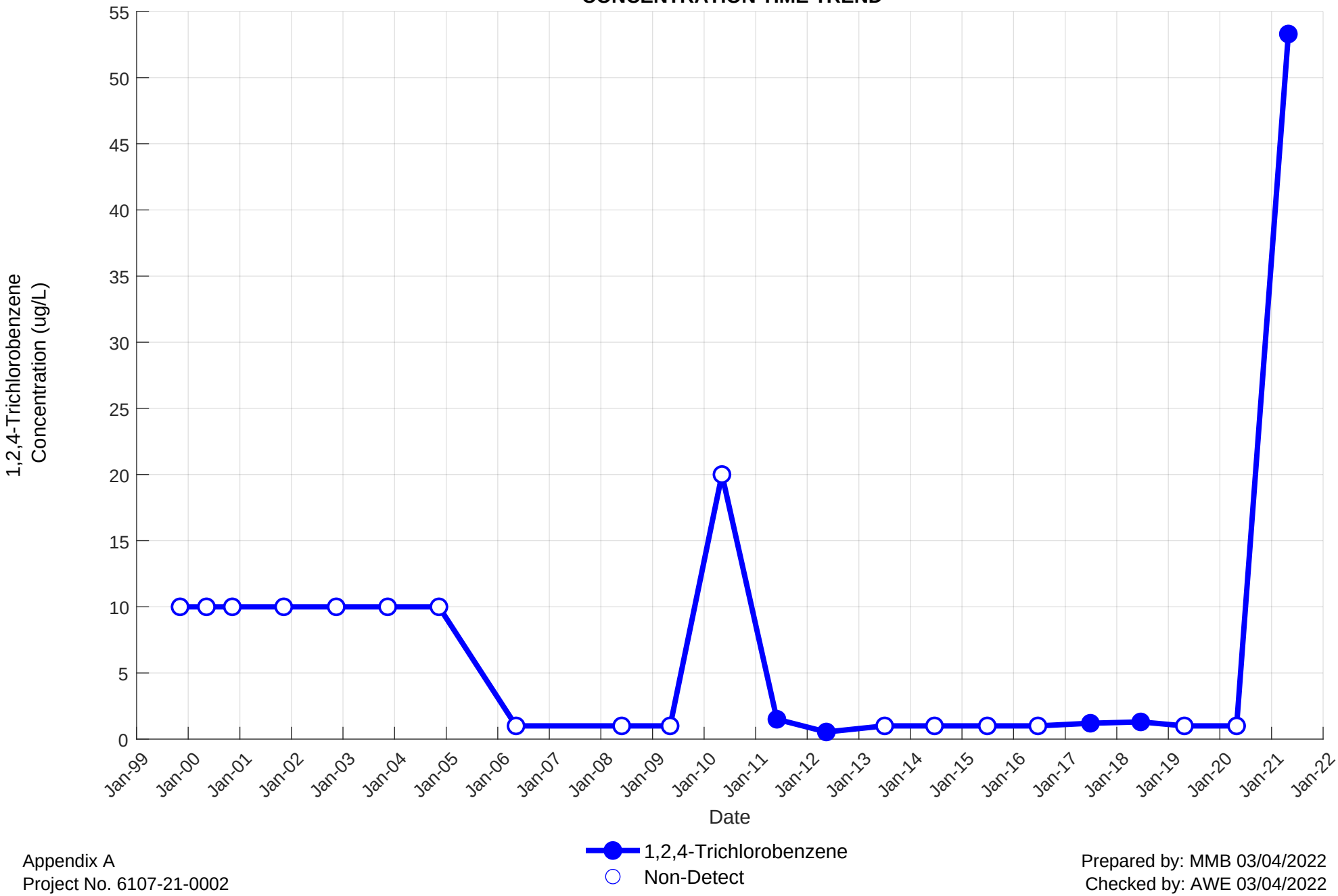
Olin Niagara Falls Plant, Niagara Falls, NY

Prepared By-Date: JCD - 3/9/2022	
Checked By-Date: AWE - 3/9/2022	wood.
Project Number: 6107200002	Figure: 4.6b

Path: G:\ArcGIS Pro Projects\Olin_Niagra\Olin_Niagra.aprx

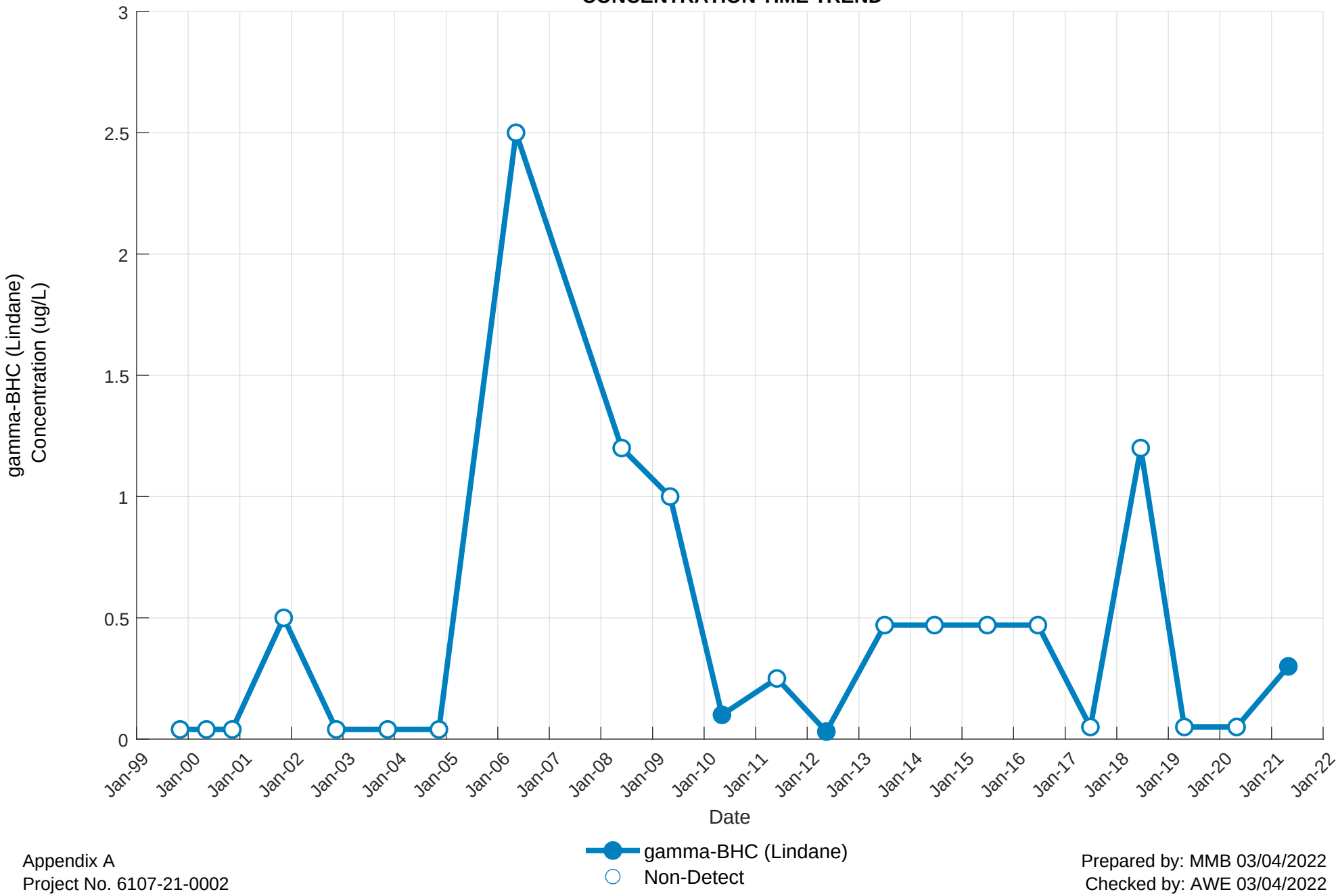
Appendix A
Constituent Concentration Trends

OBA-1A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



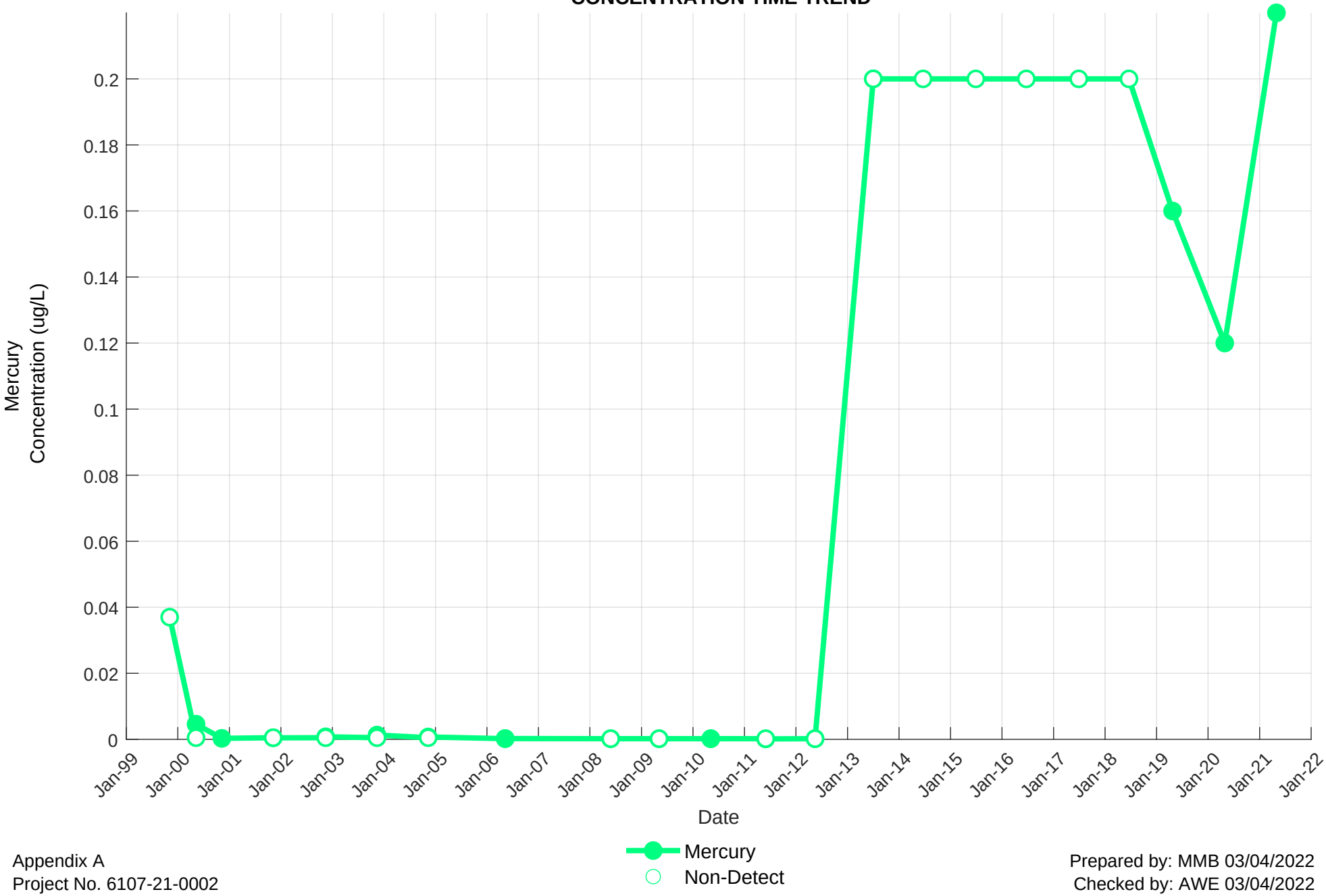
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-1A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



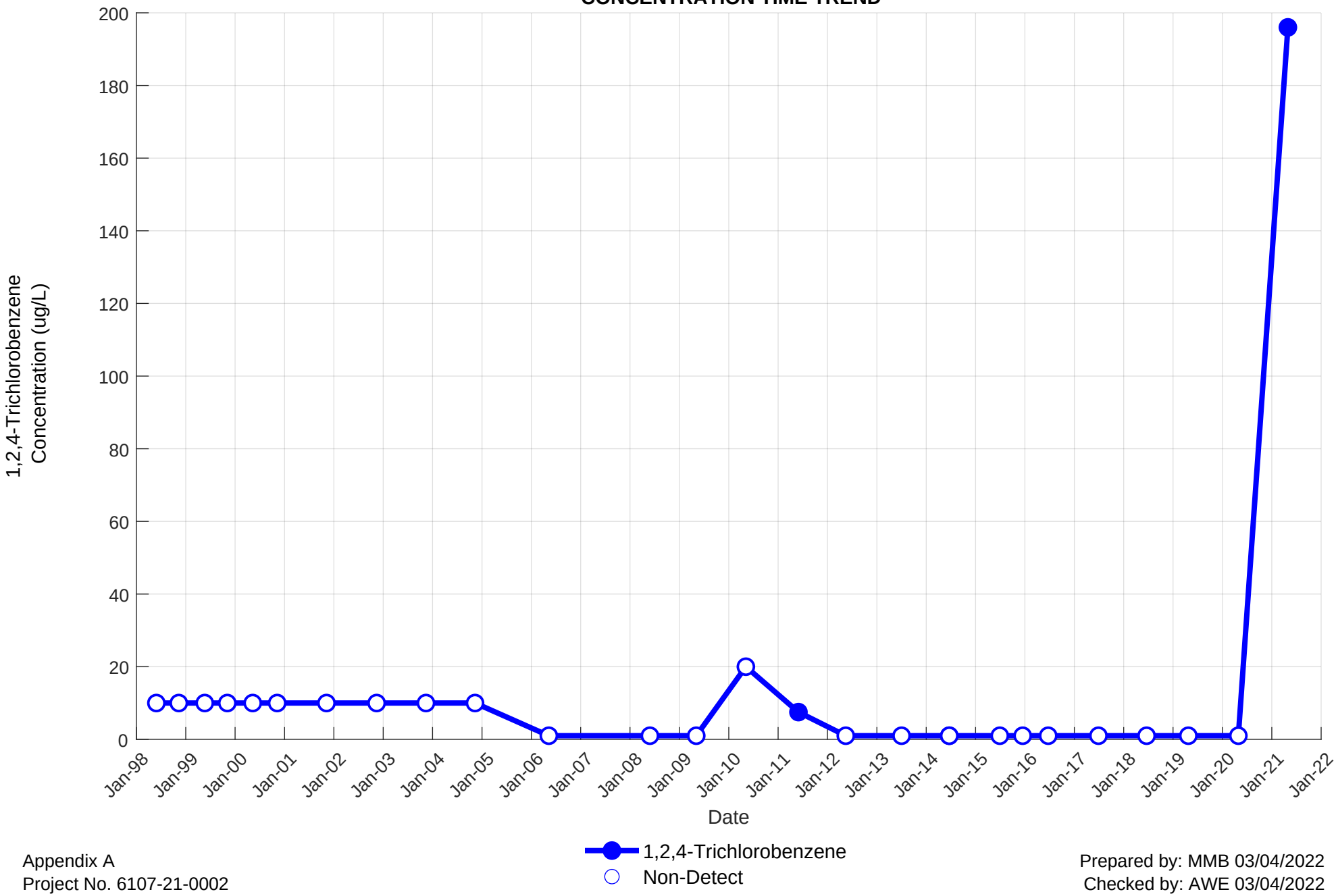
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-1A
MERCURY
CONCENTRATION TIME TREND



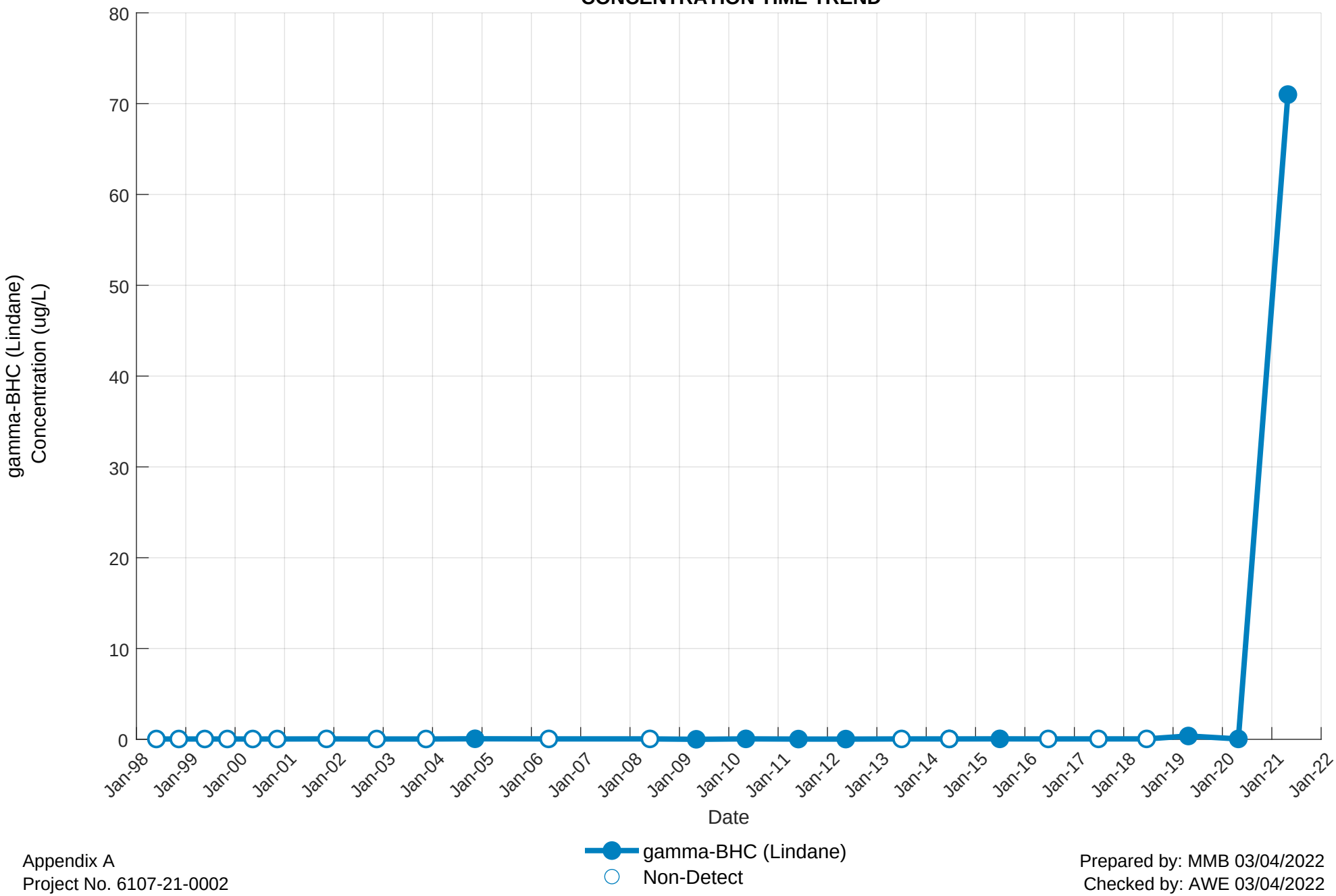
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-1B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



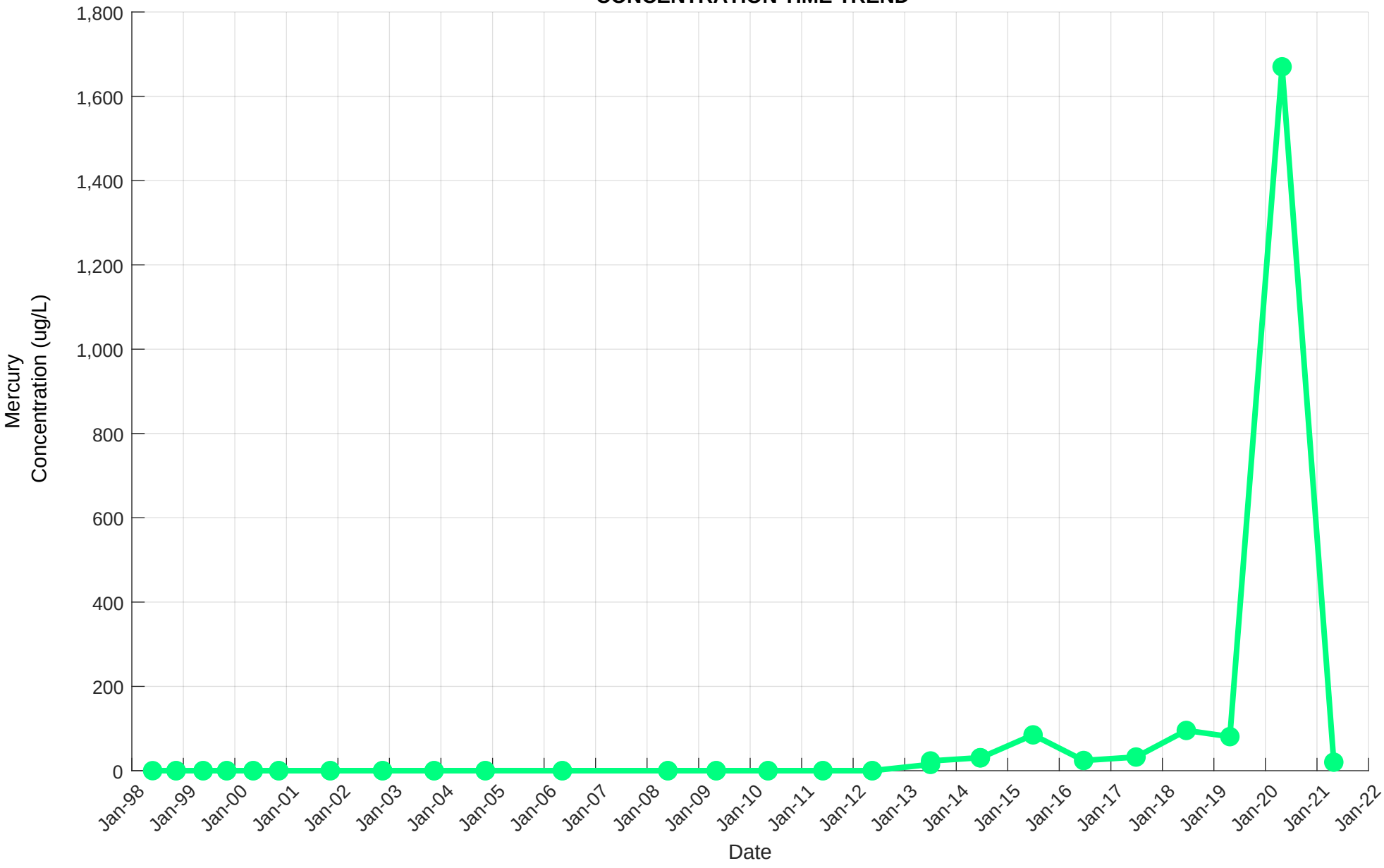
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-1B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

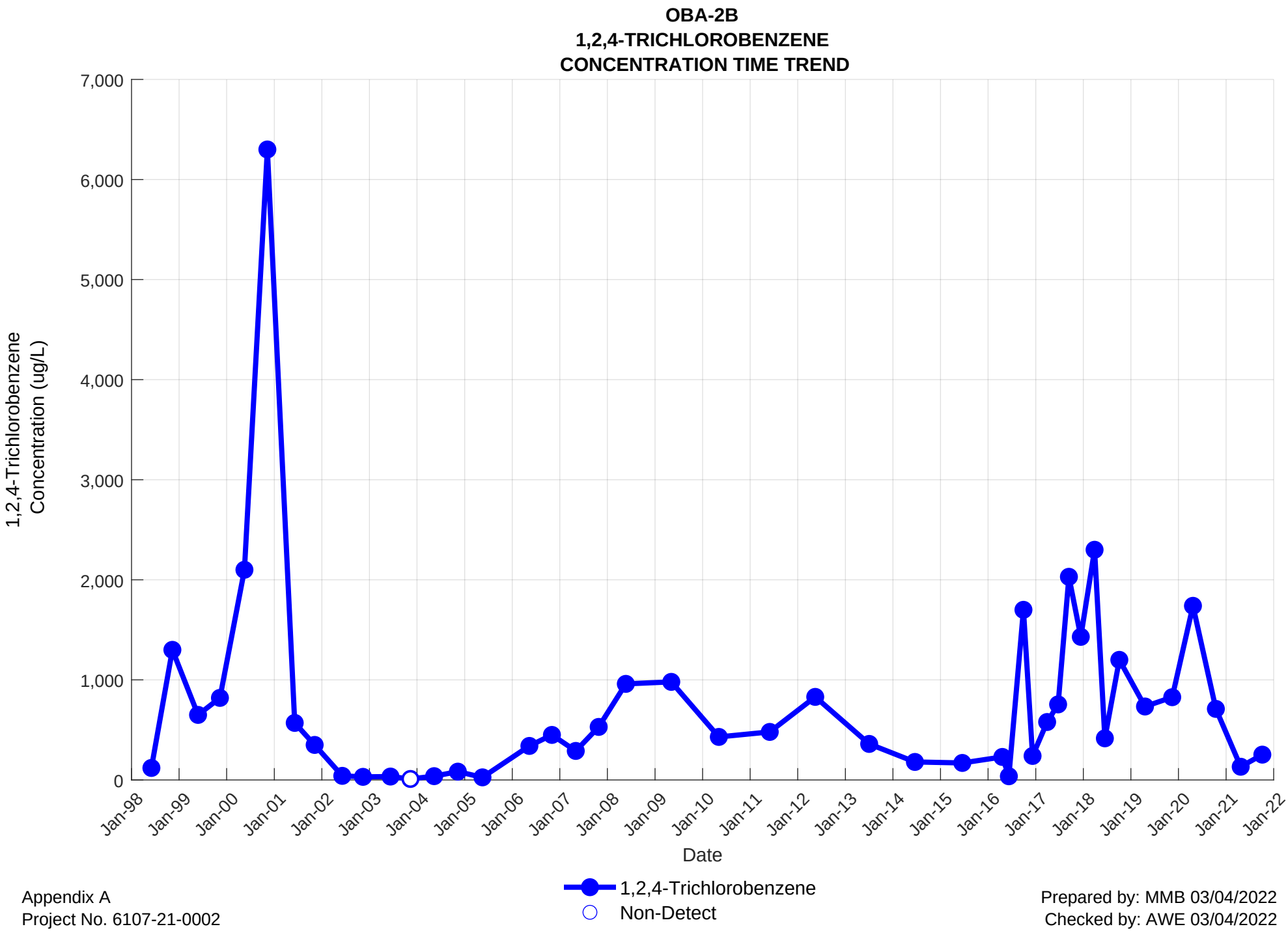


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-1B
MERCURY
CONCENTRATION TIME TREND

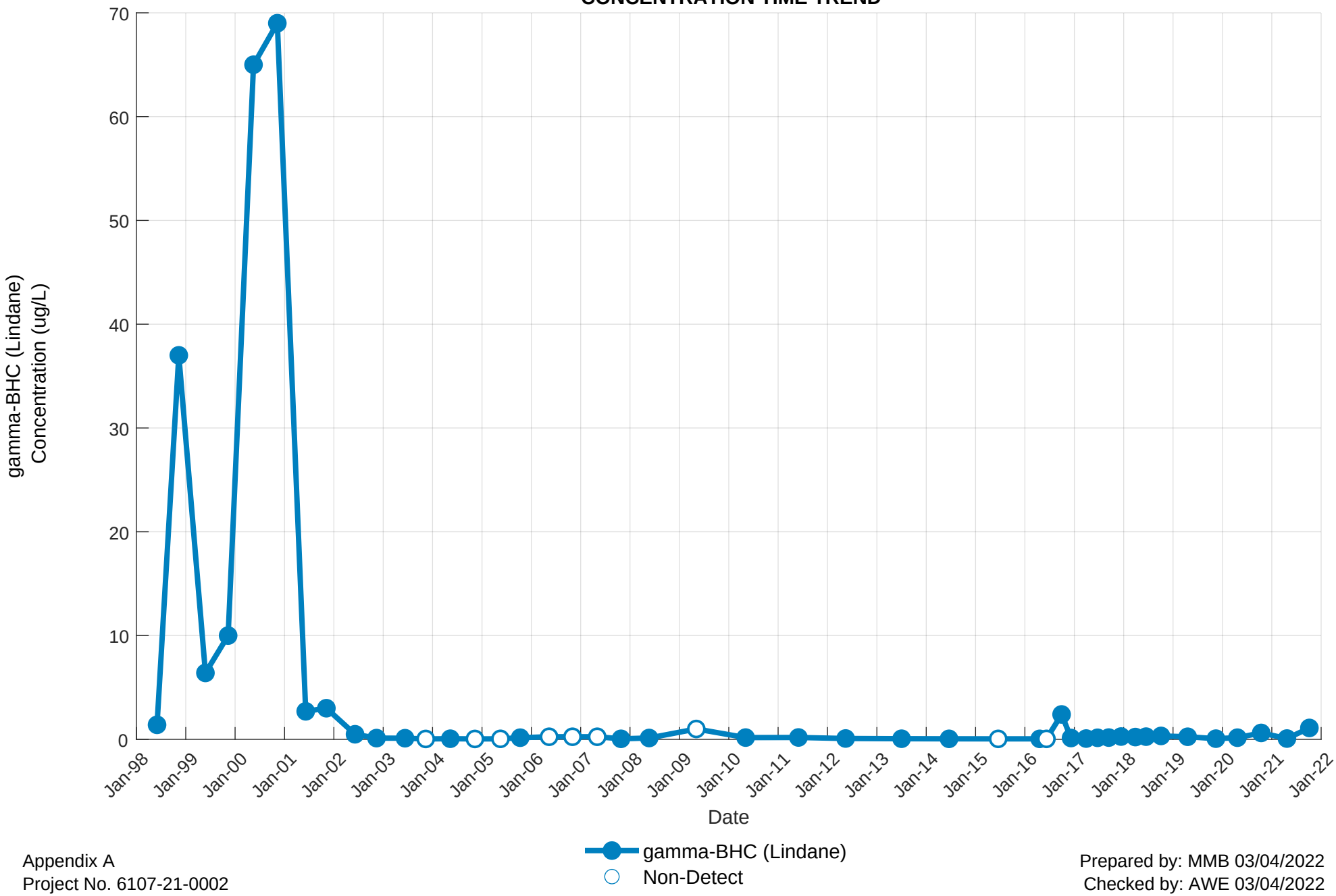


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

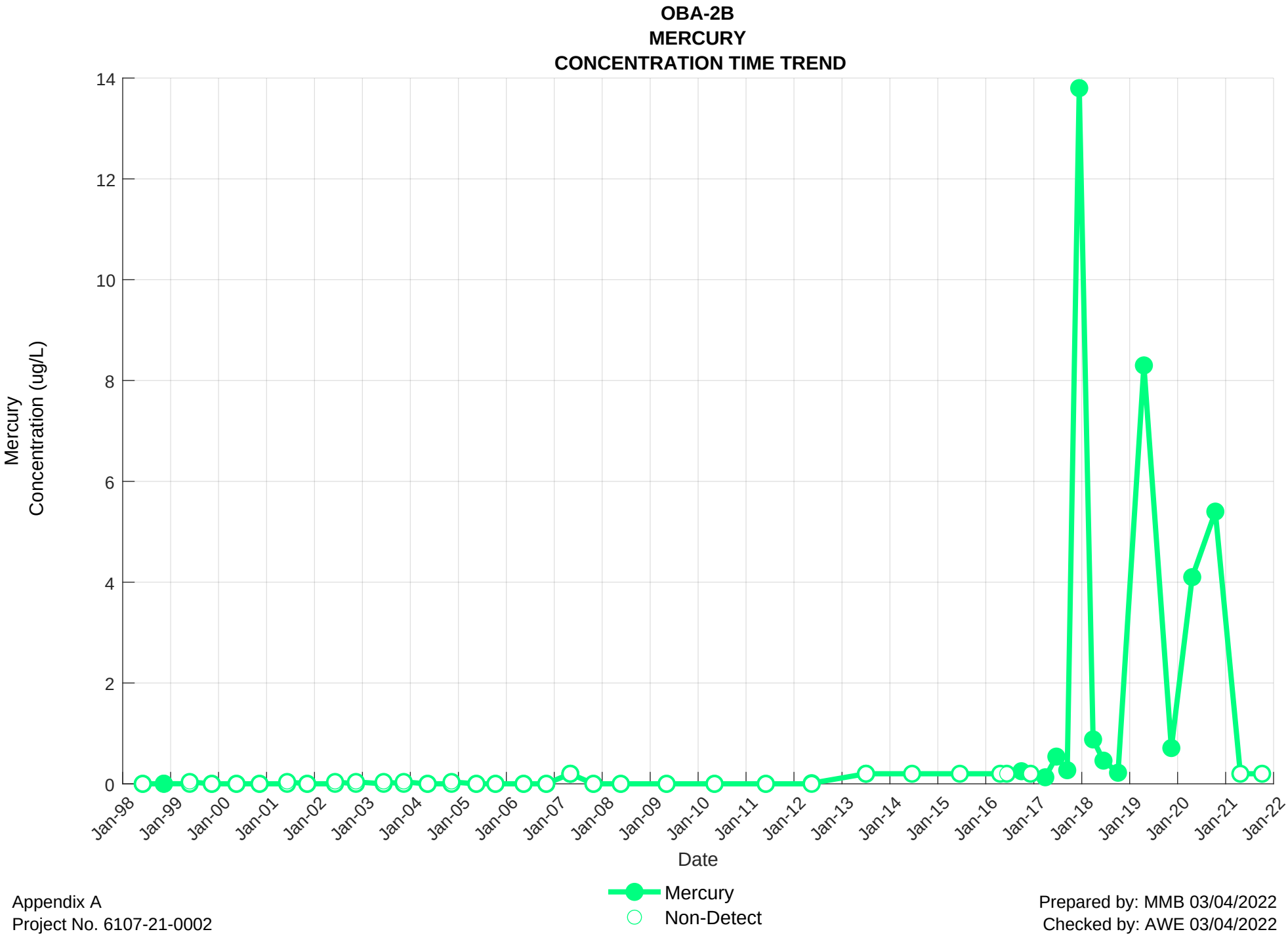


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-2B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

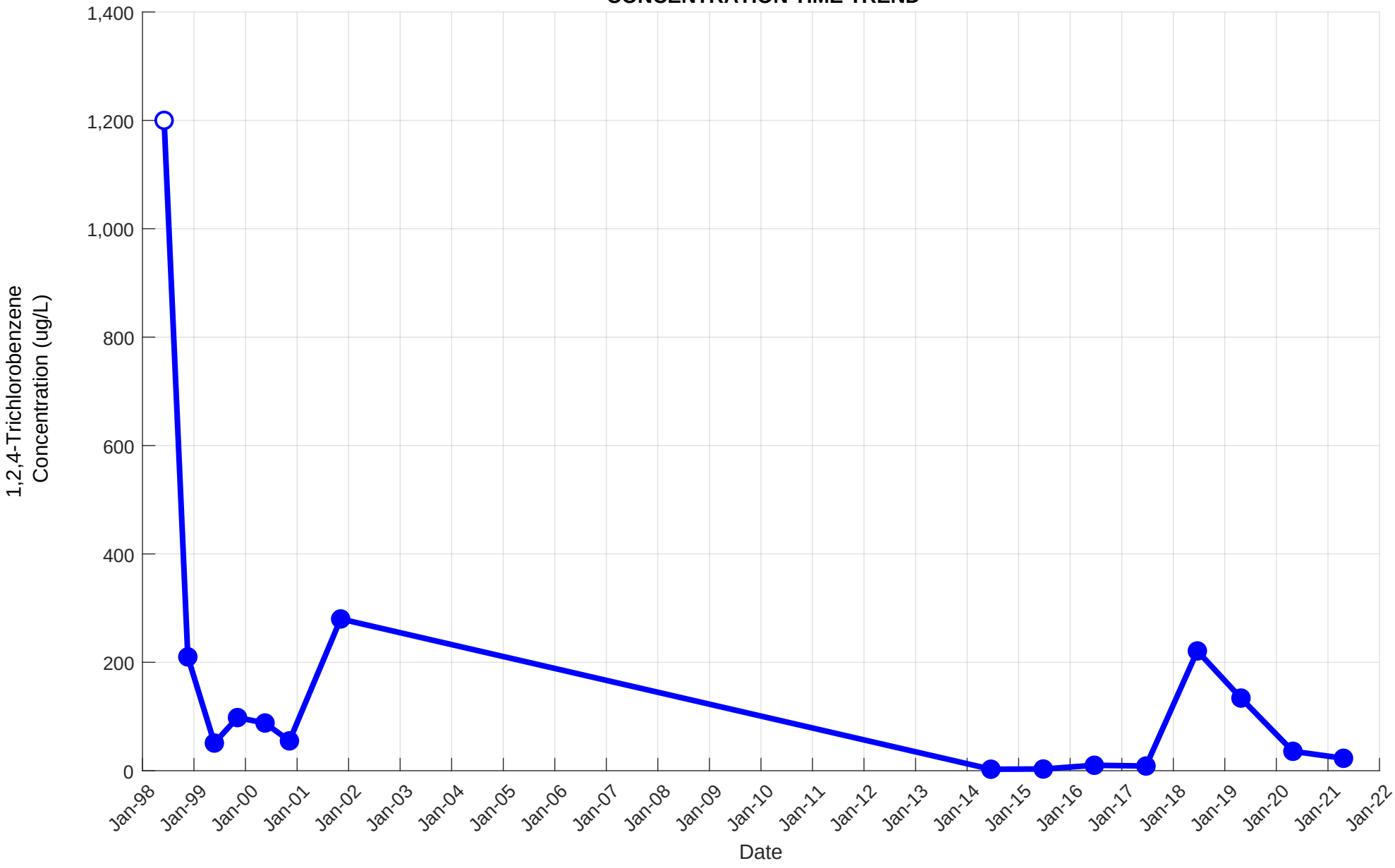


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022


OBA-2B
MERCURY
CONCENTRATION TIME TREND
Mercury
Concentration (ug/L)
0
2
4
6
8
10
12
14
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Date
Mercury
Non-Detect

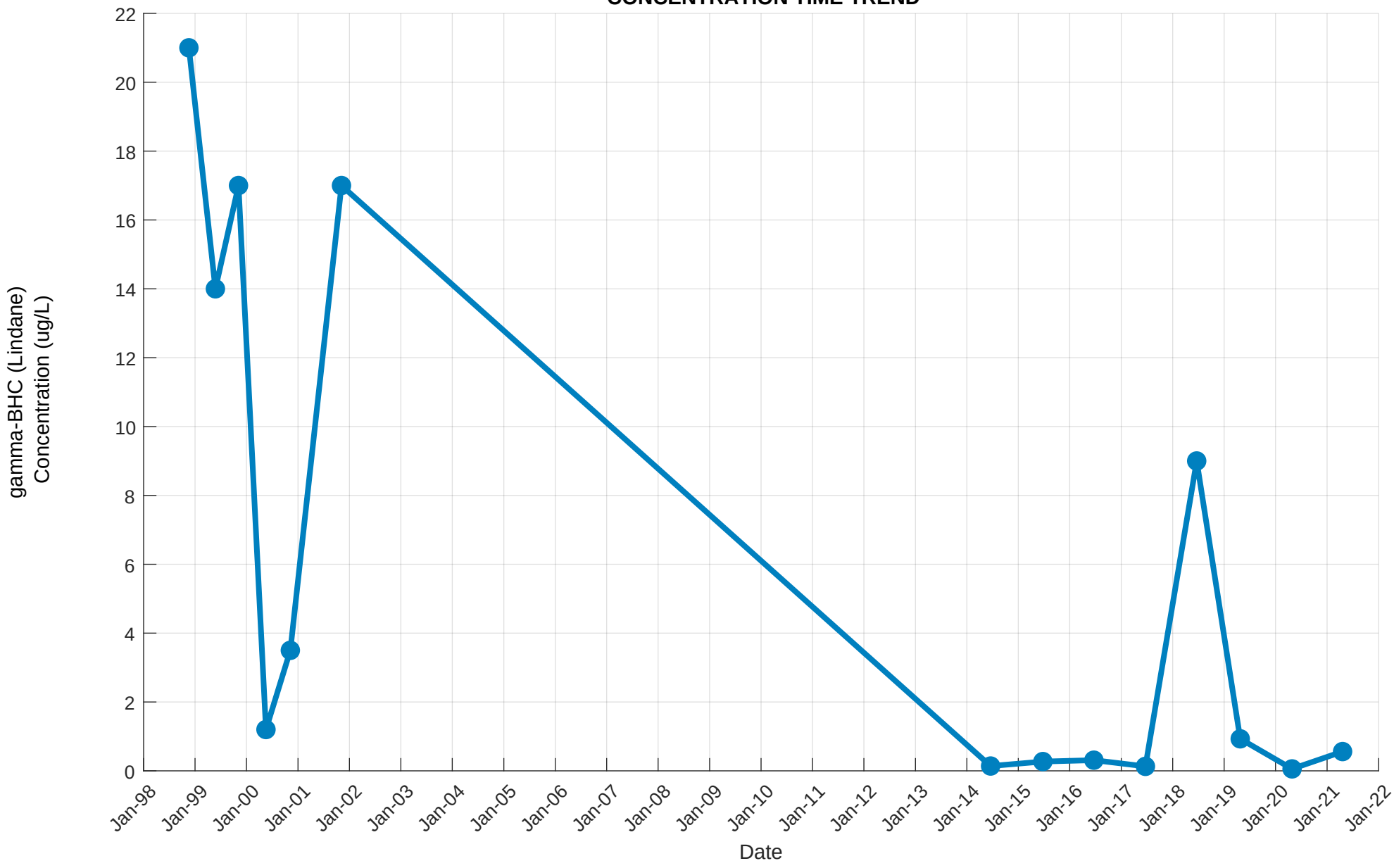
March 30, 2022

OBA-3A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



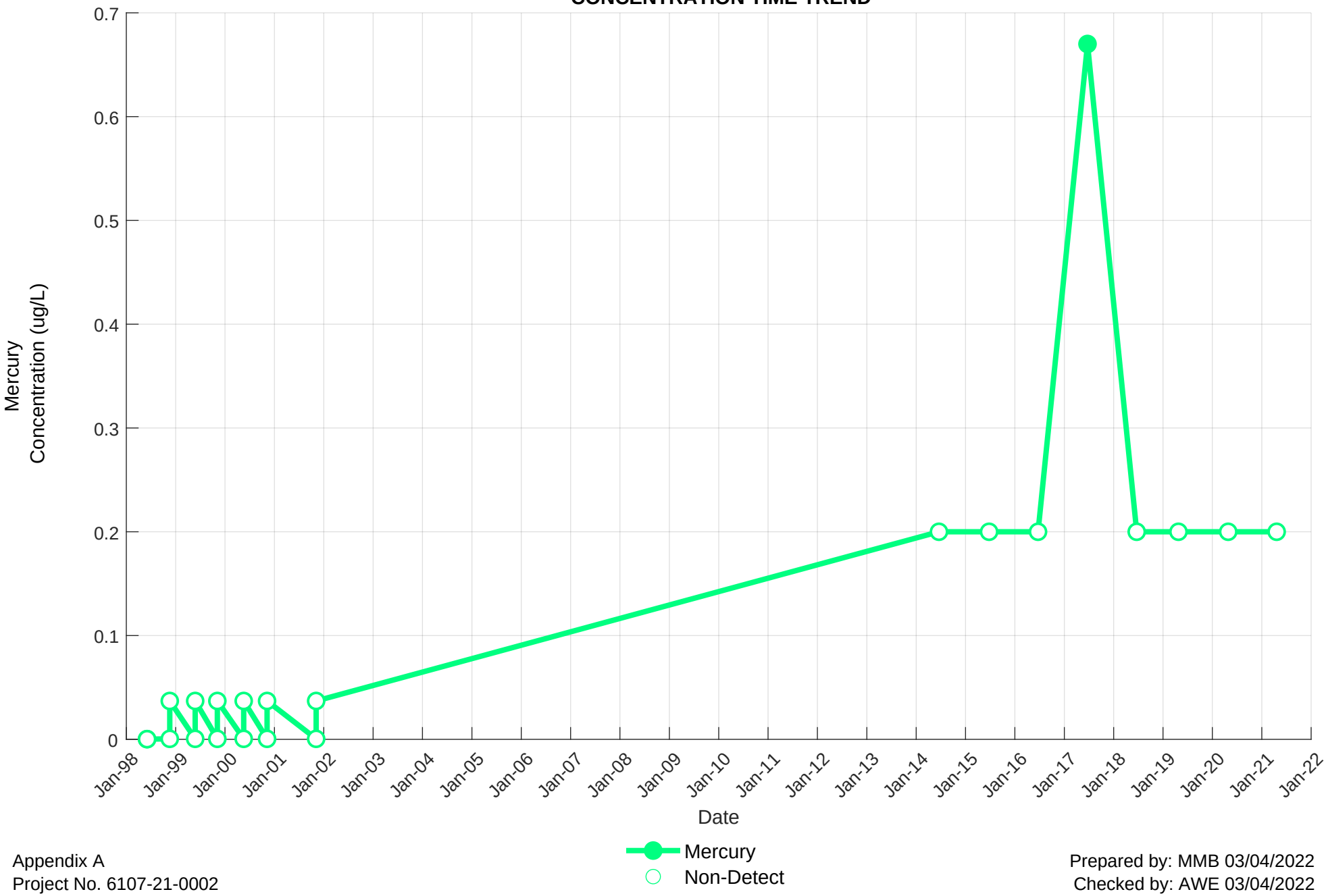
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-3A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

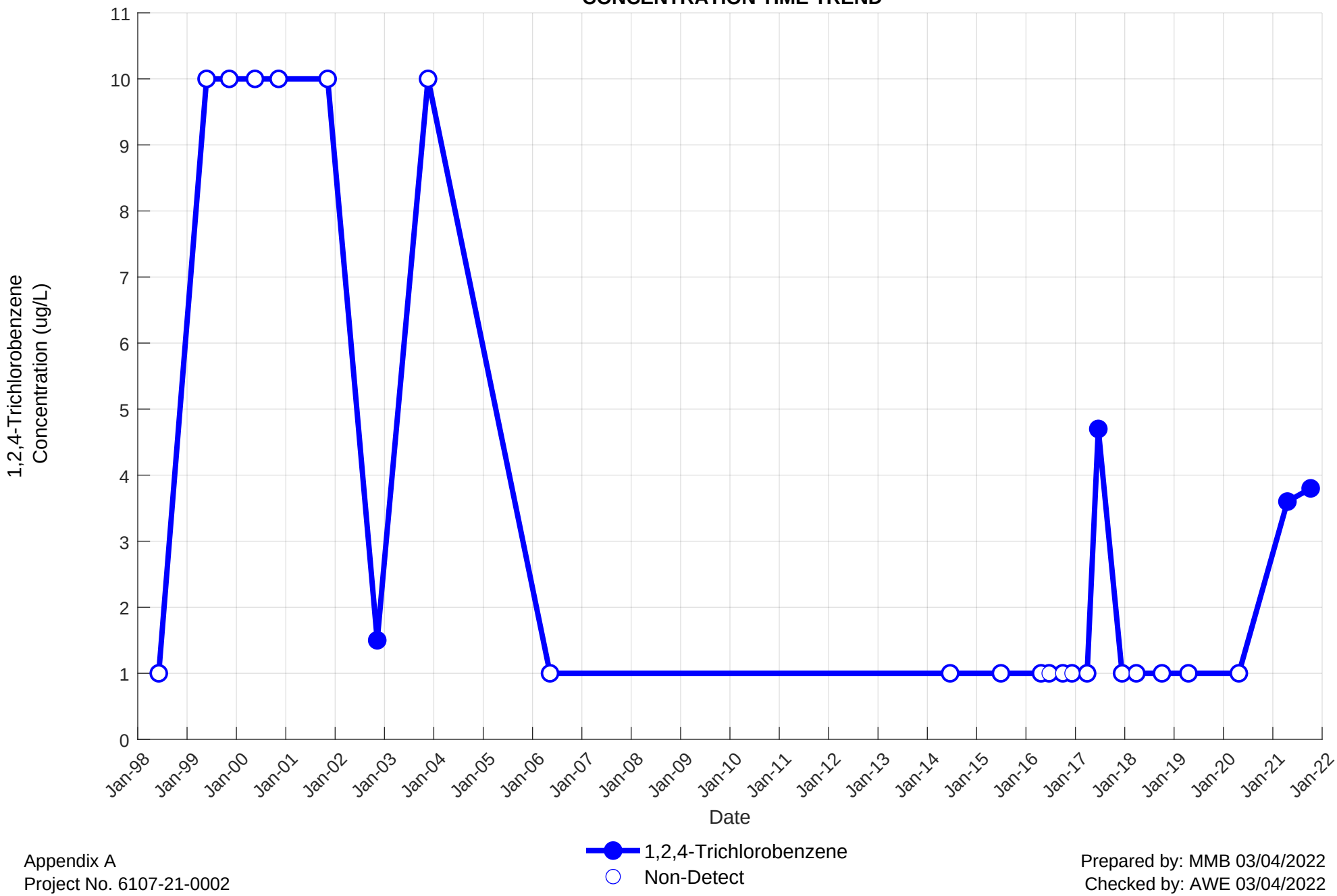
OBA-3A
MERCURY
CONCENTRATION TIME TREND



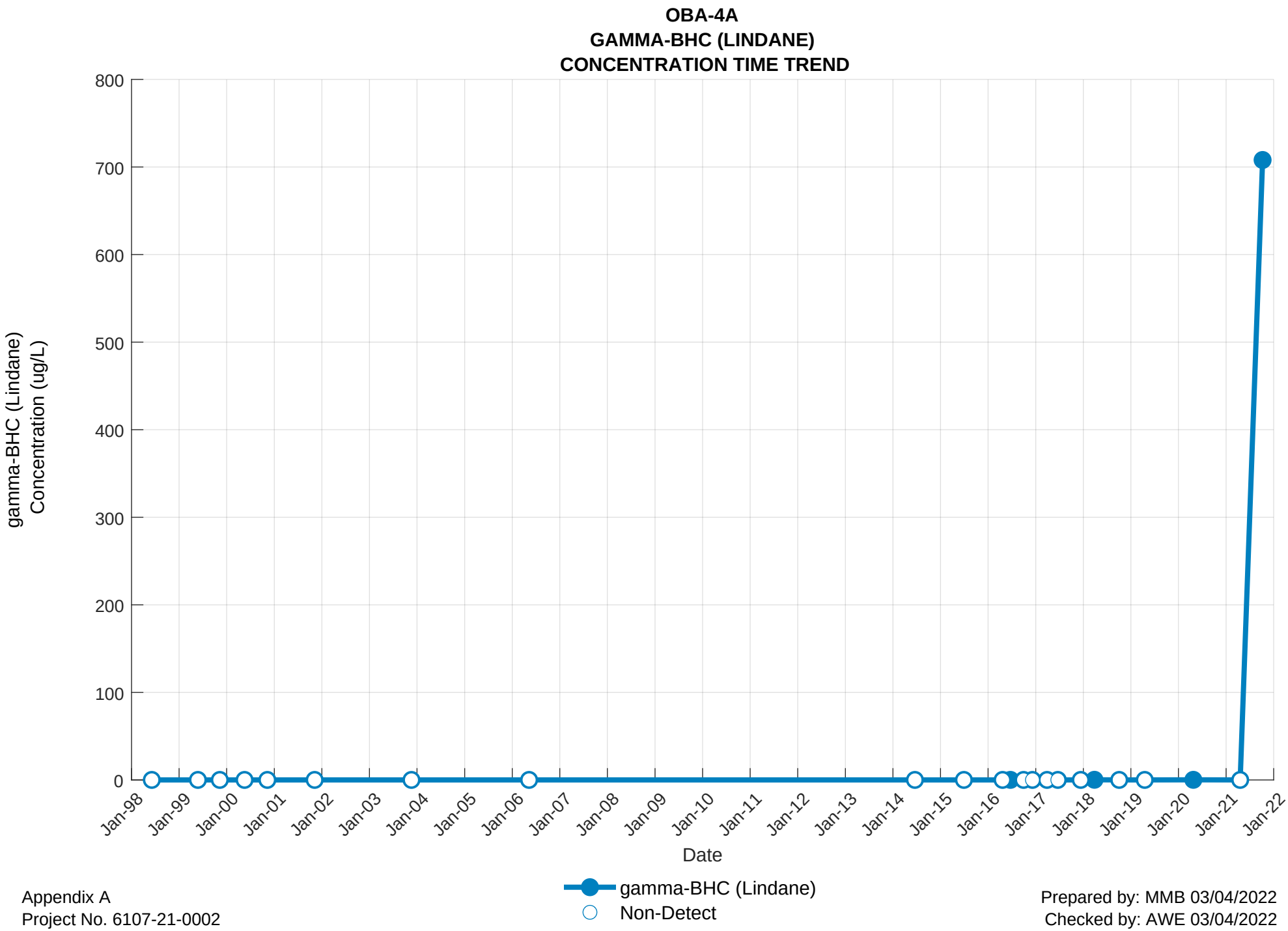
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

March 30, 2022

OBA-4A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

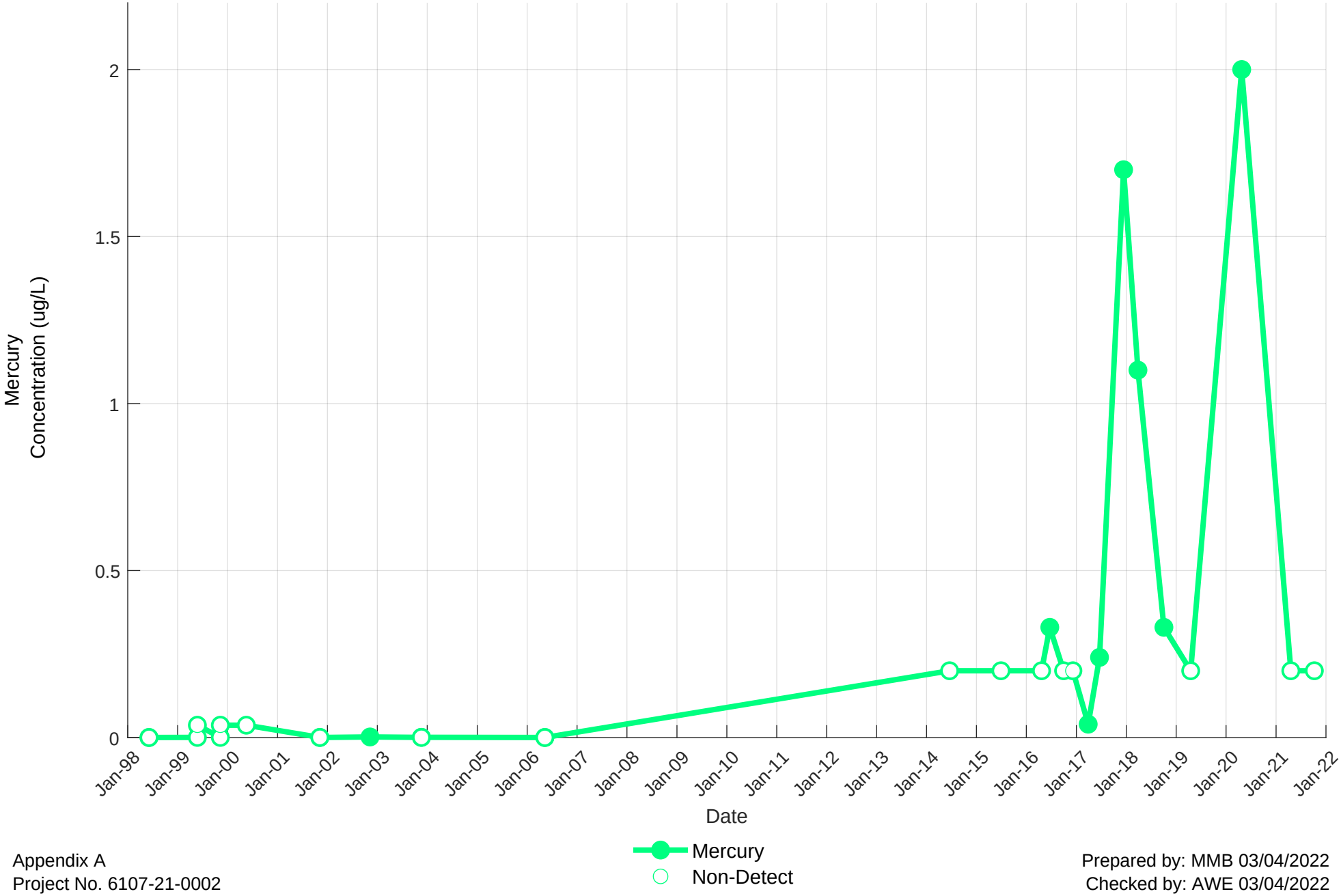


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

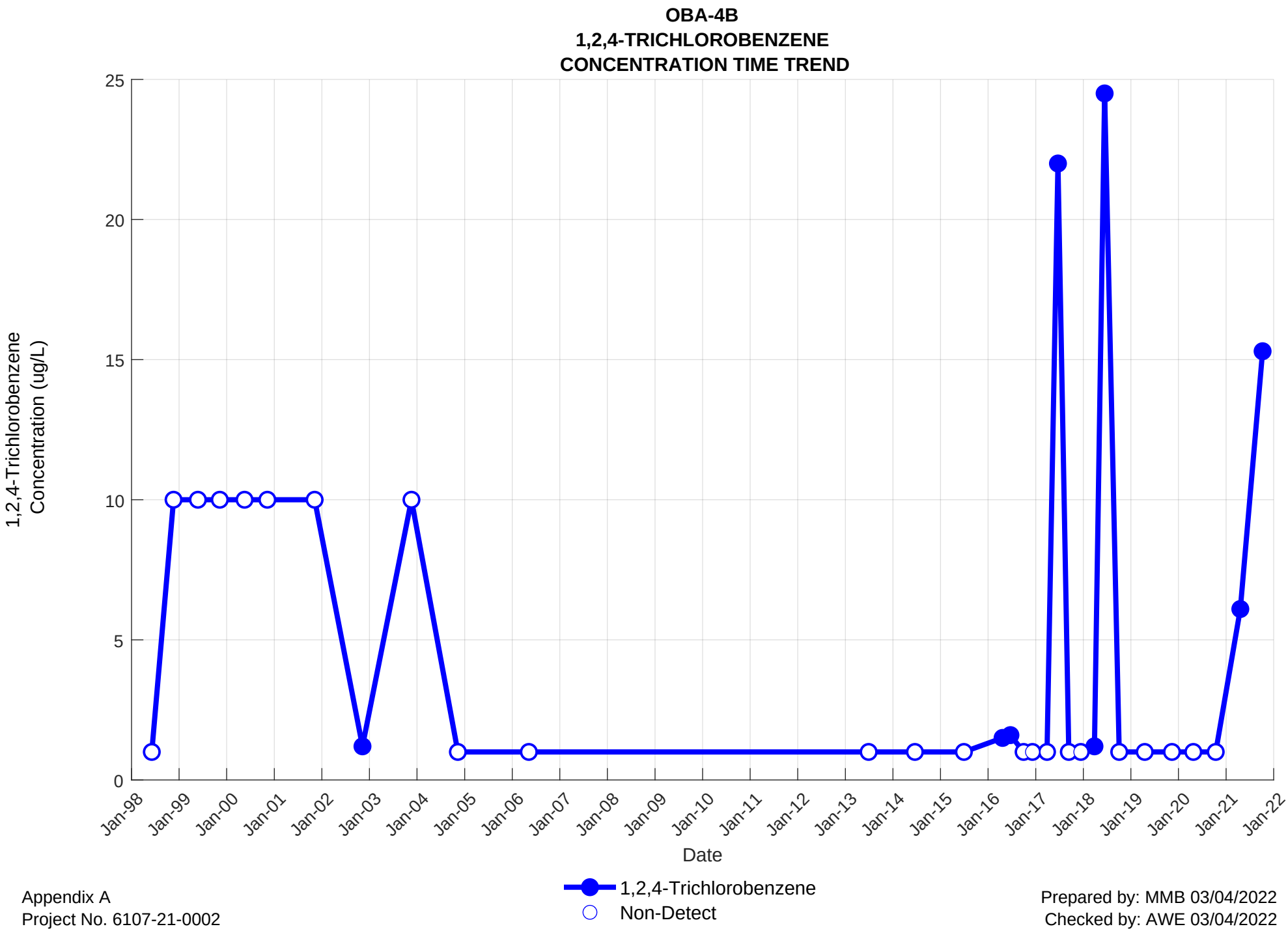


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-4A
MERCURY
CONCENTRATION TIME TREND

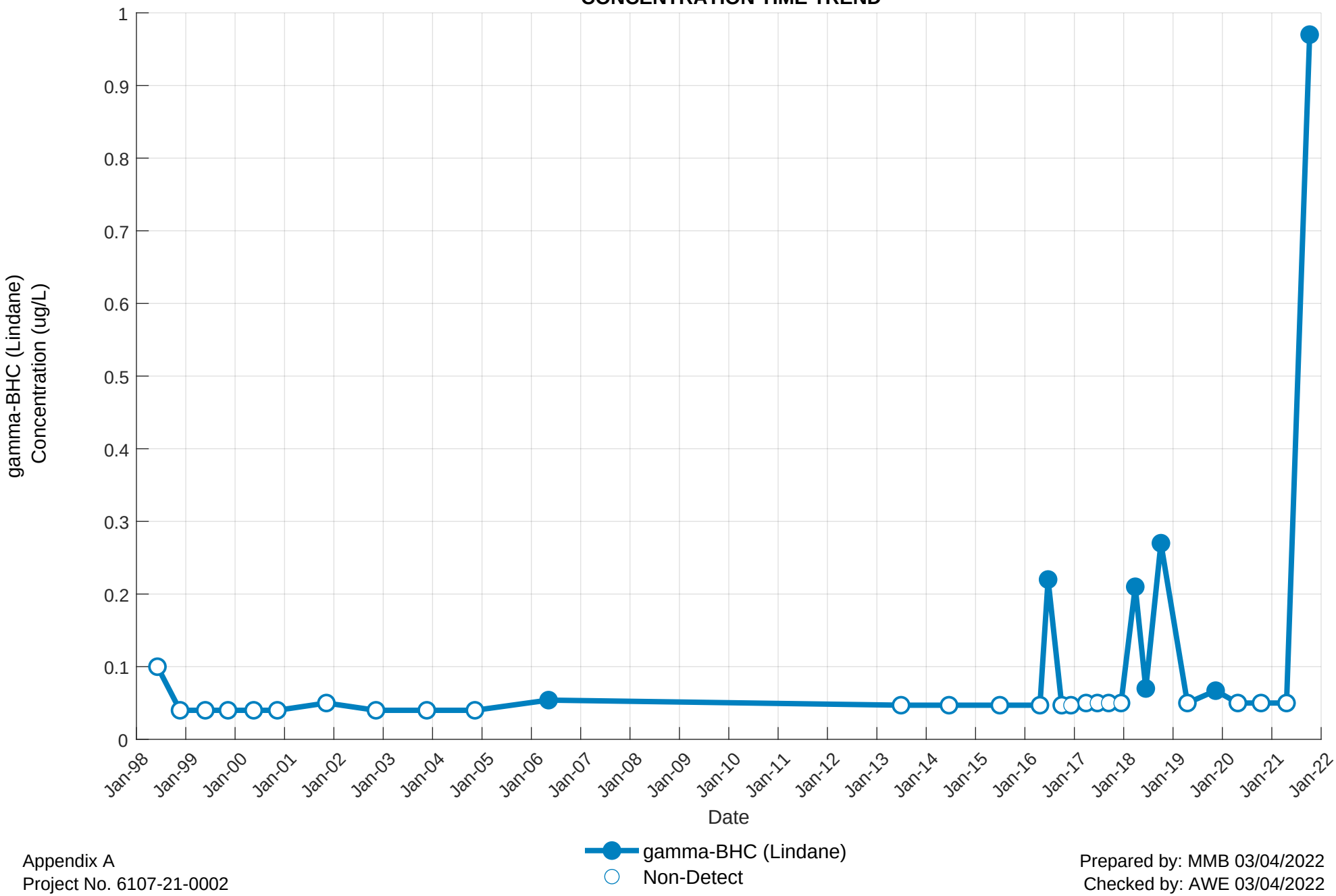


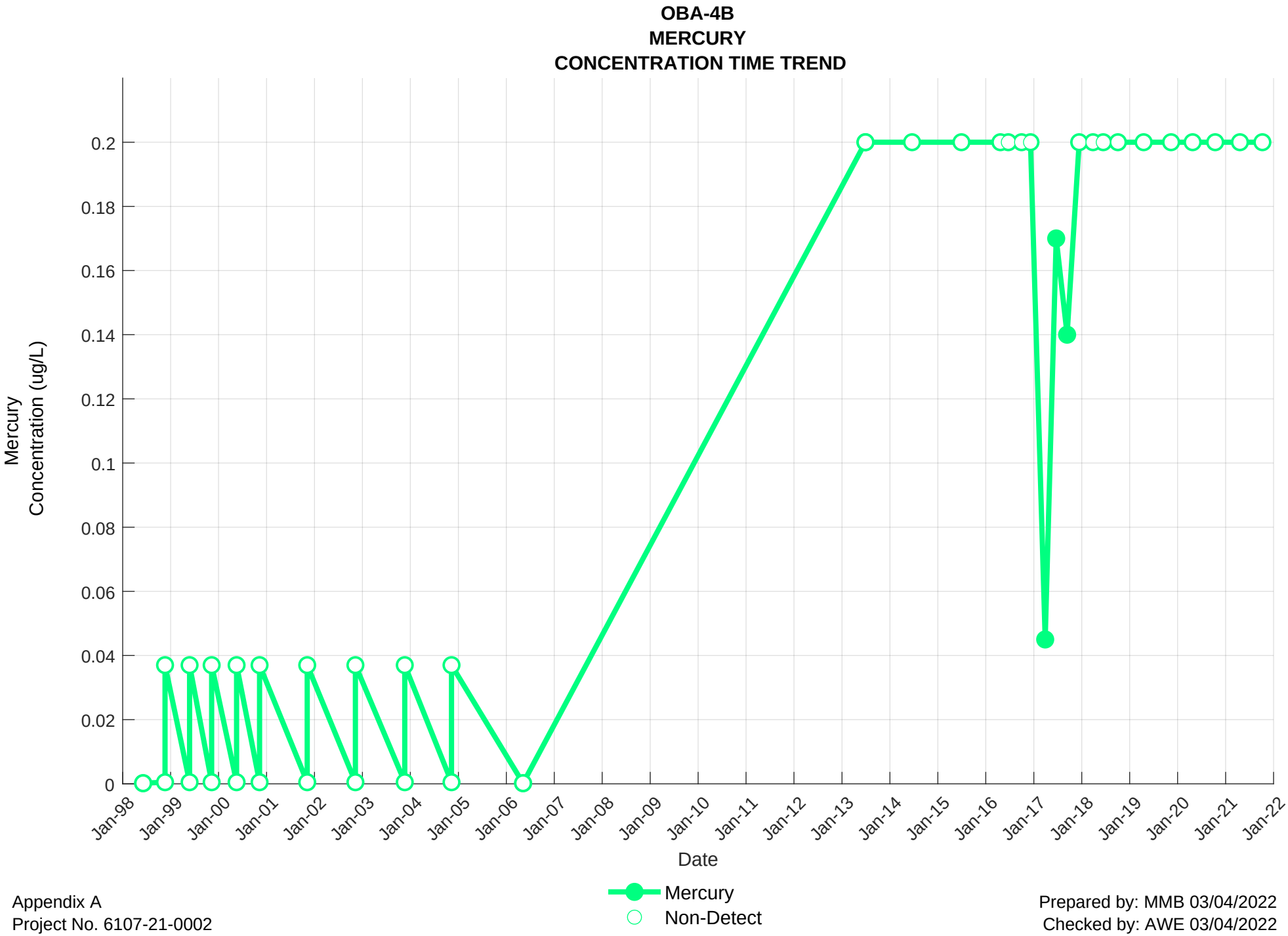
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



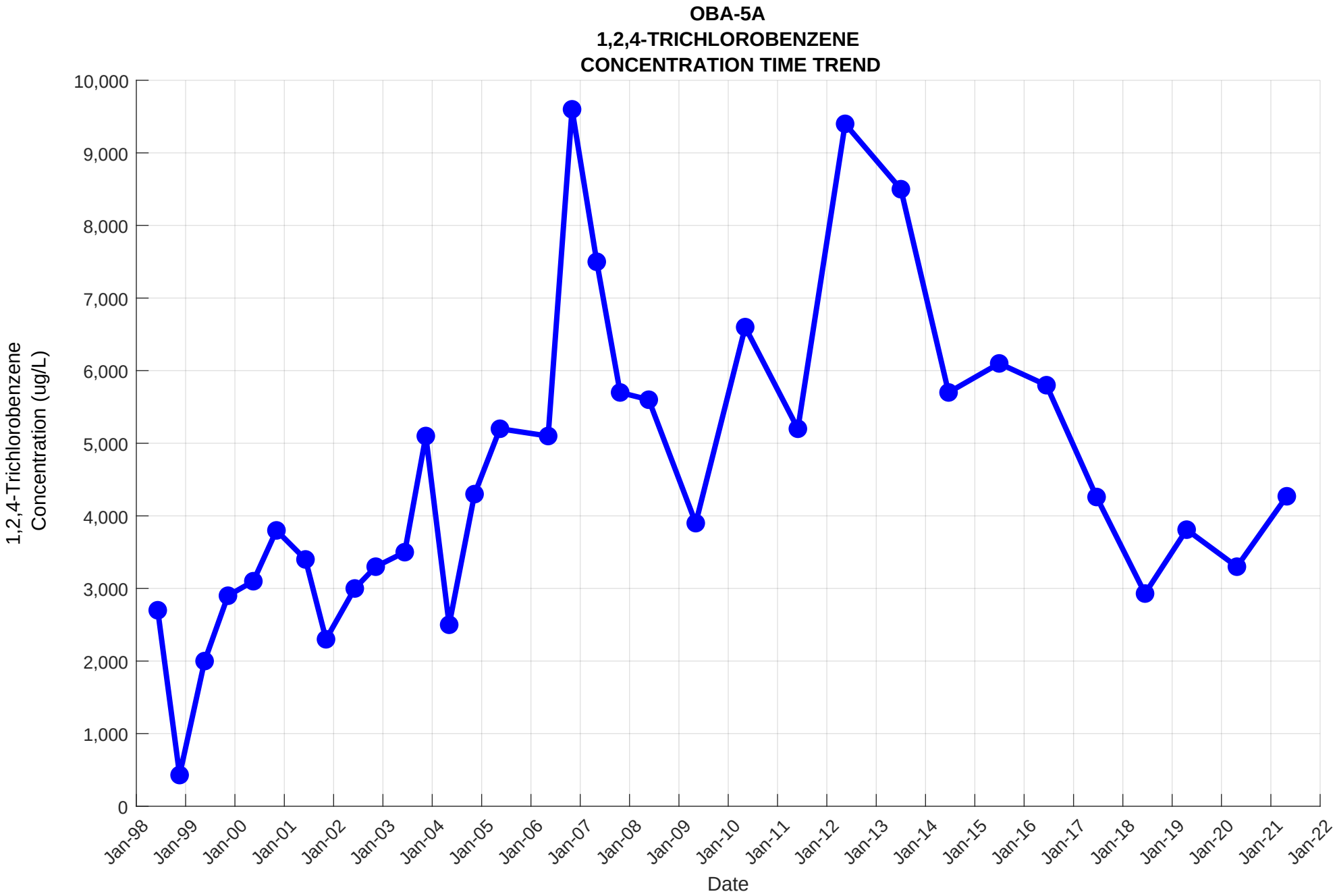
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-4B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

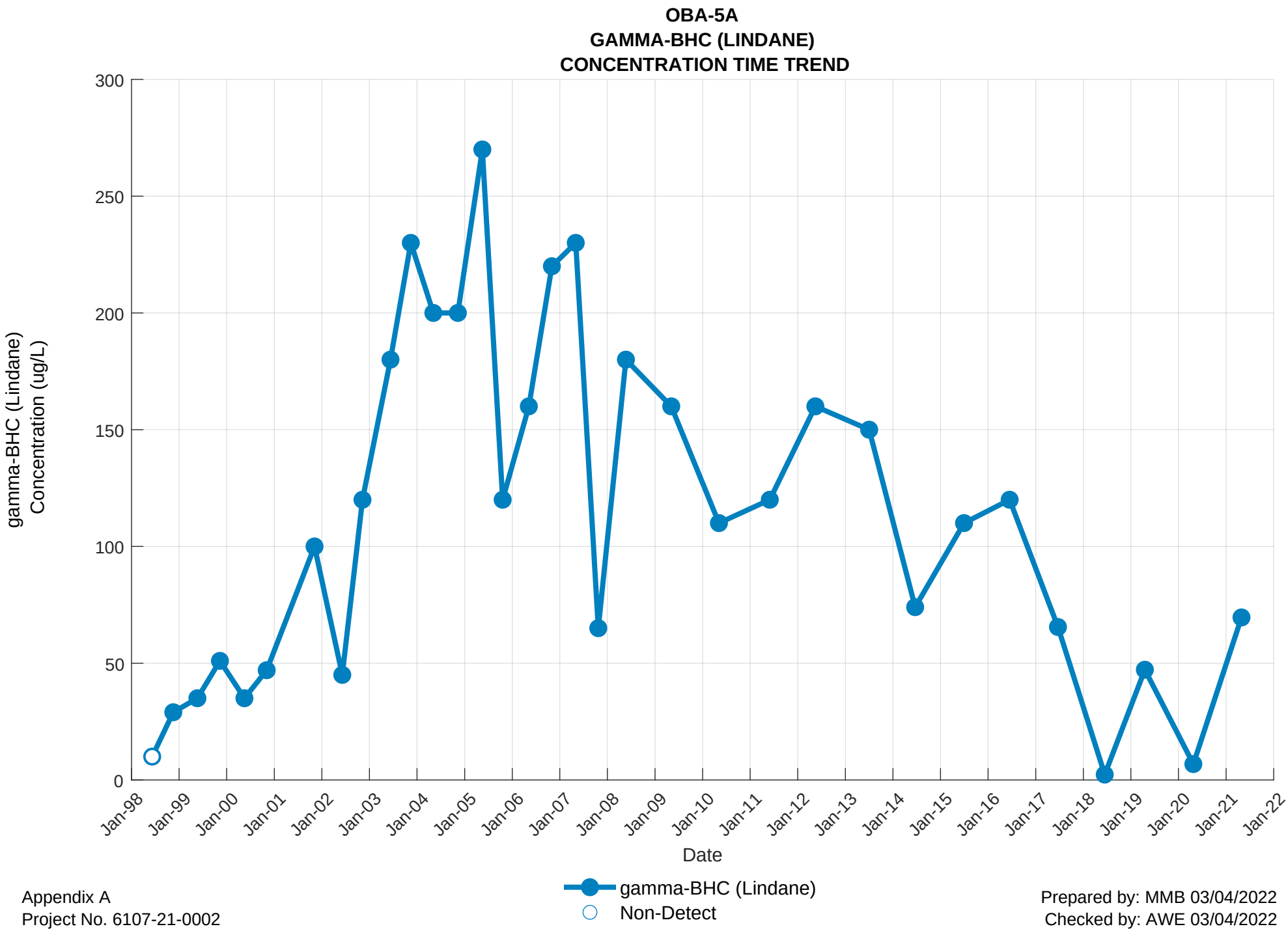




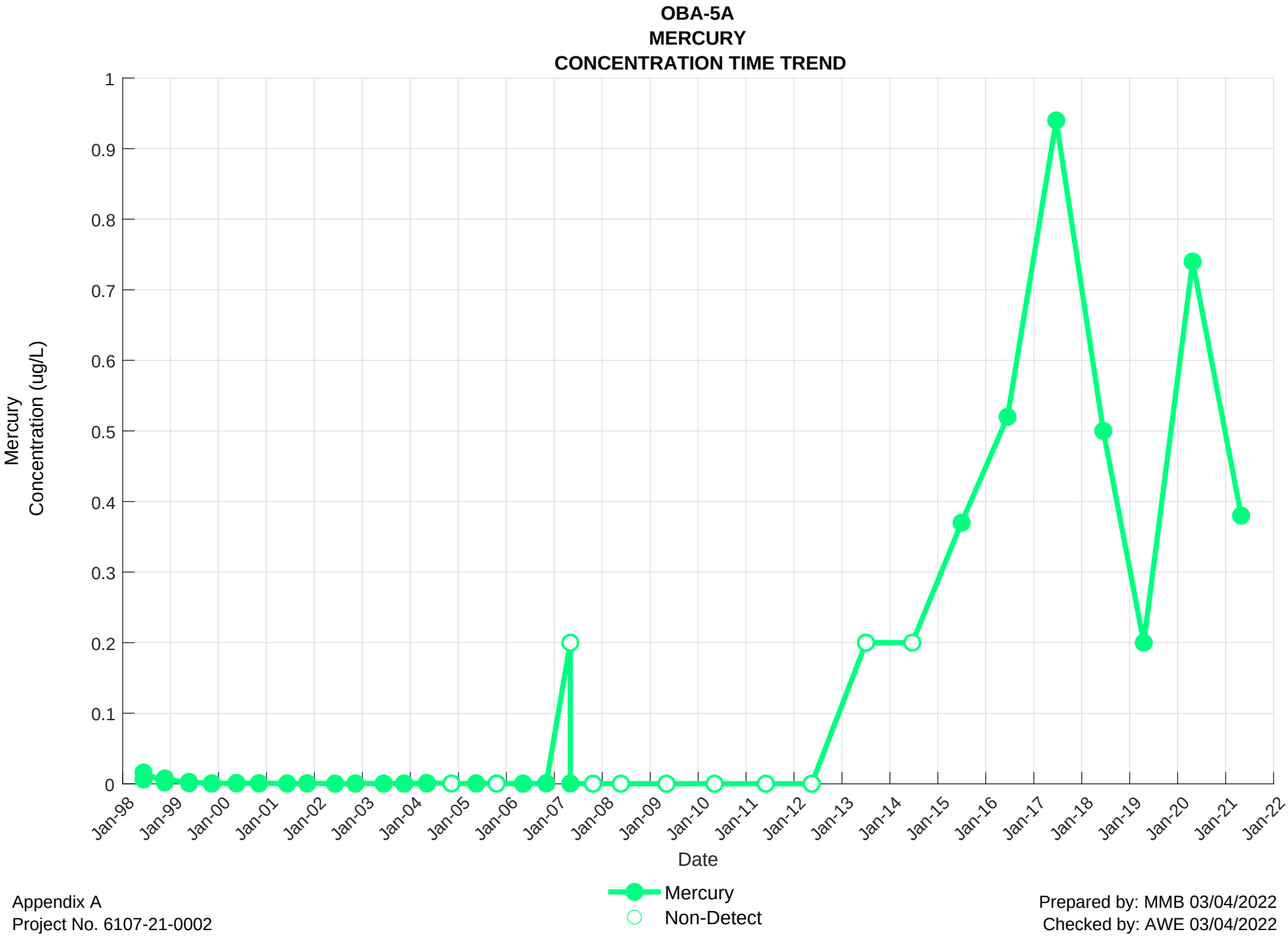
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

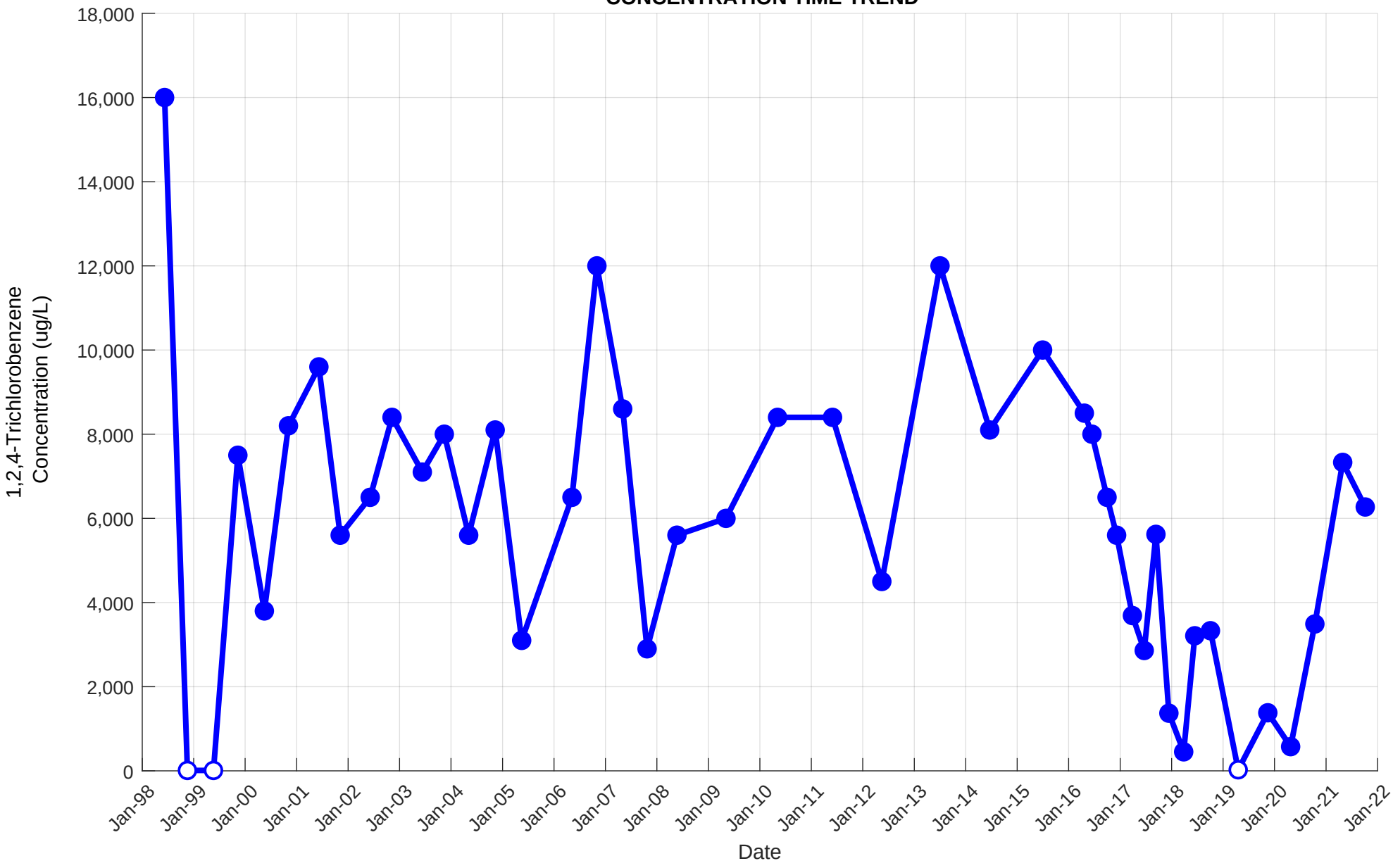


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



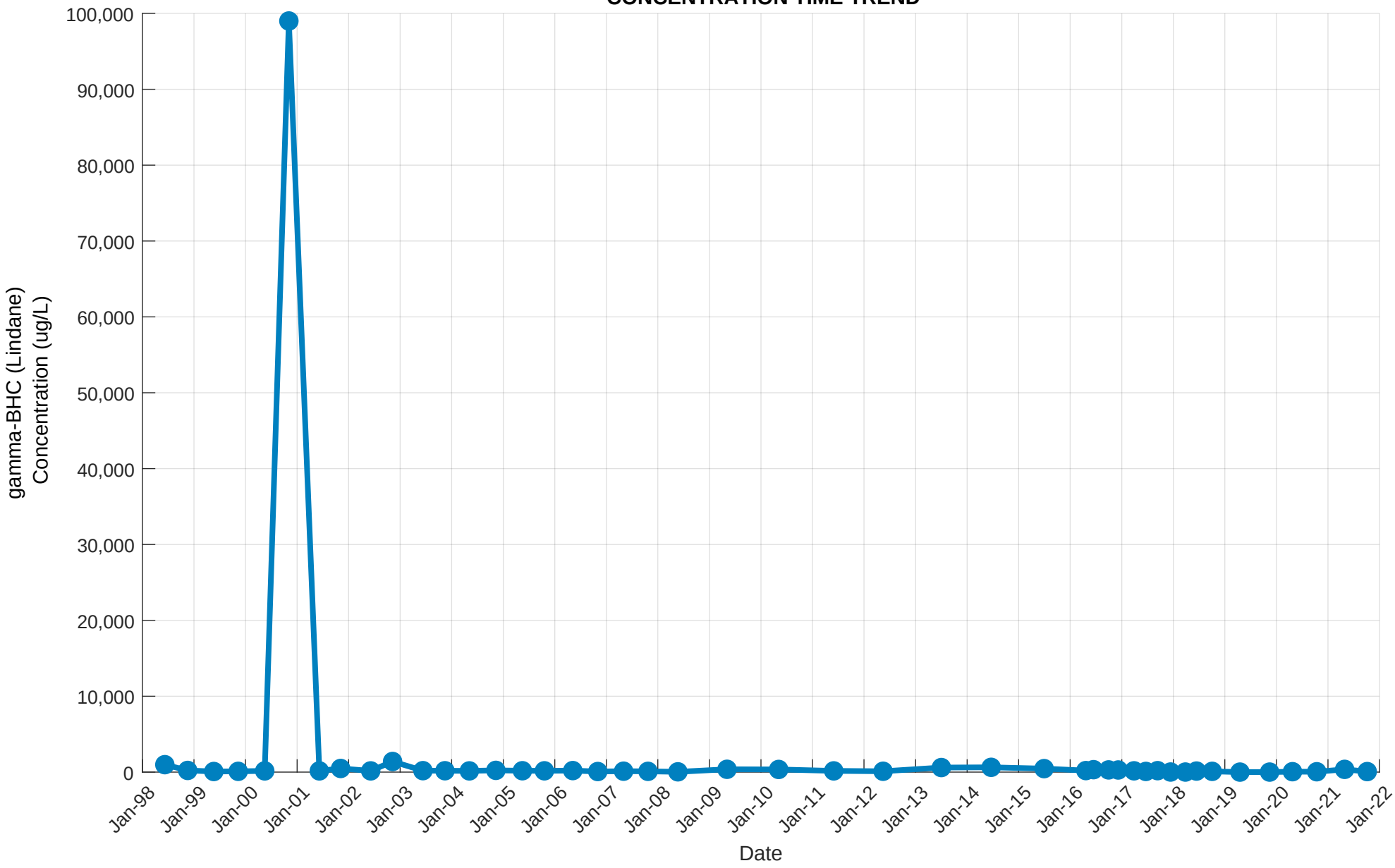
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-5B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



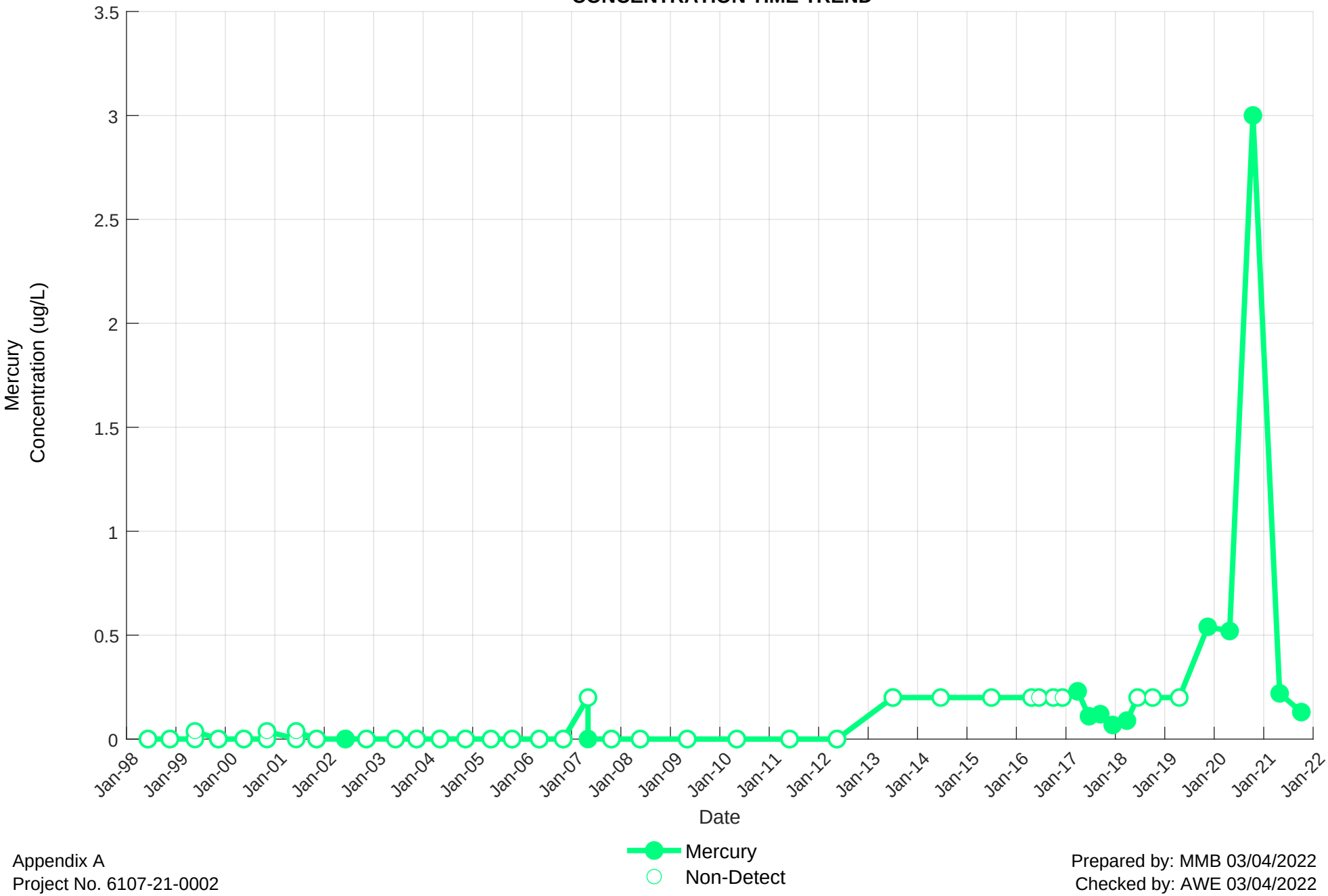
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-5B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



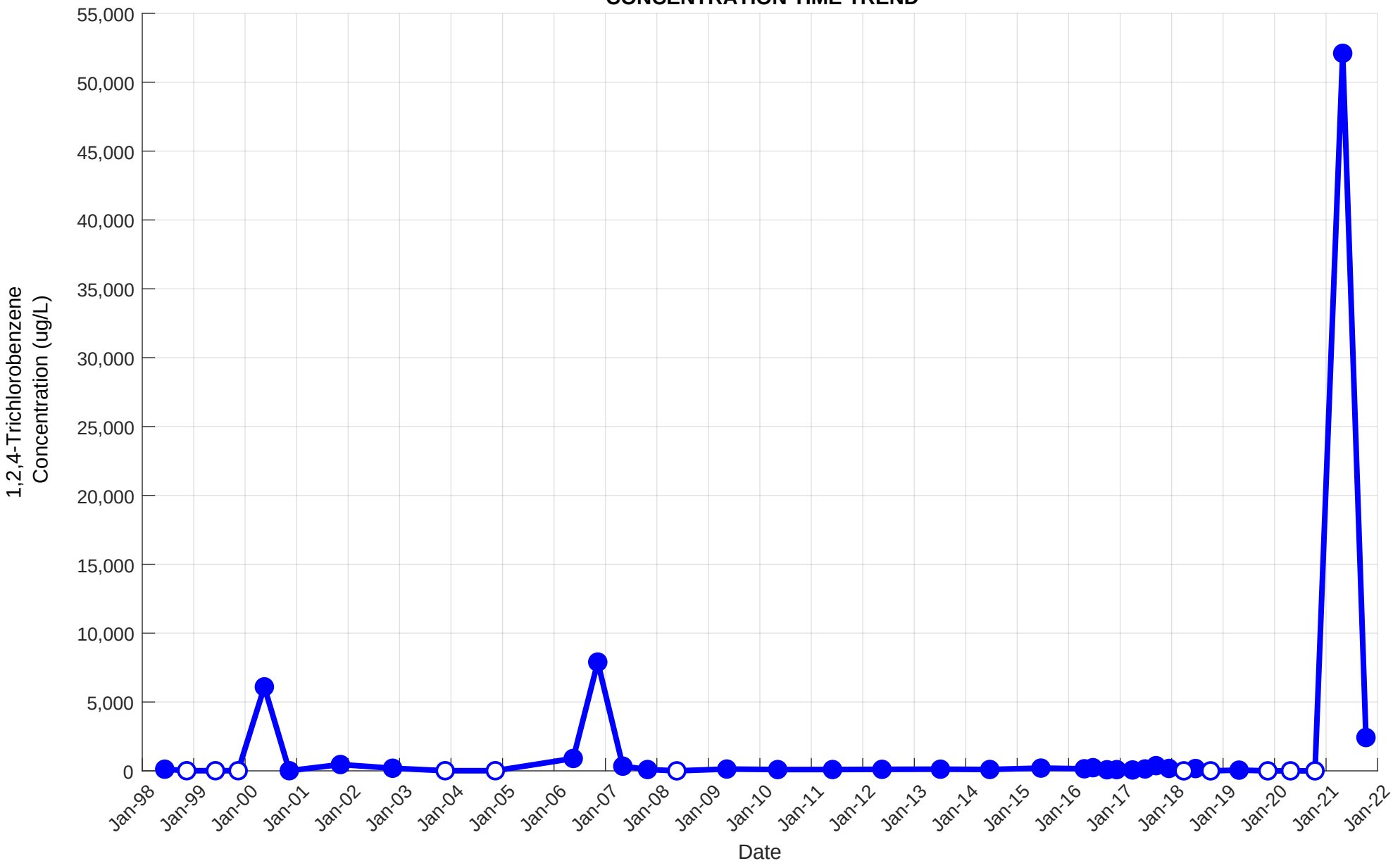
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-5B
MERCURY
CONCENTRATION TIME TREND



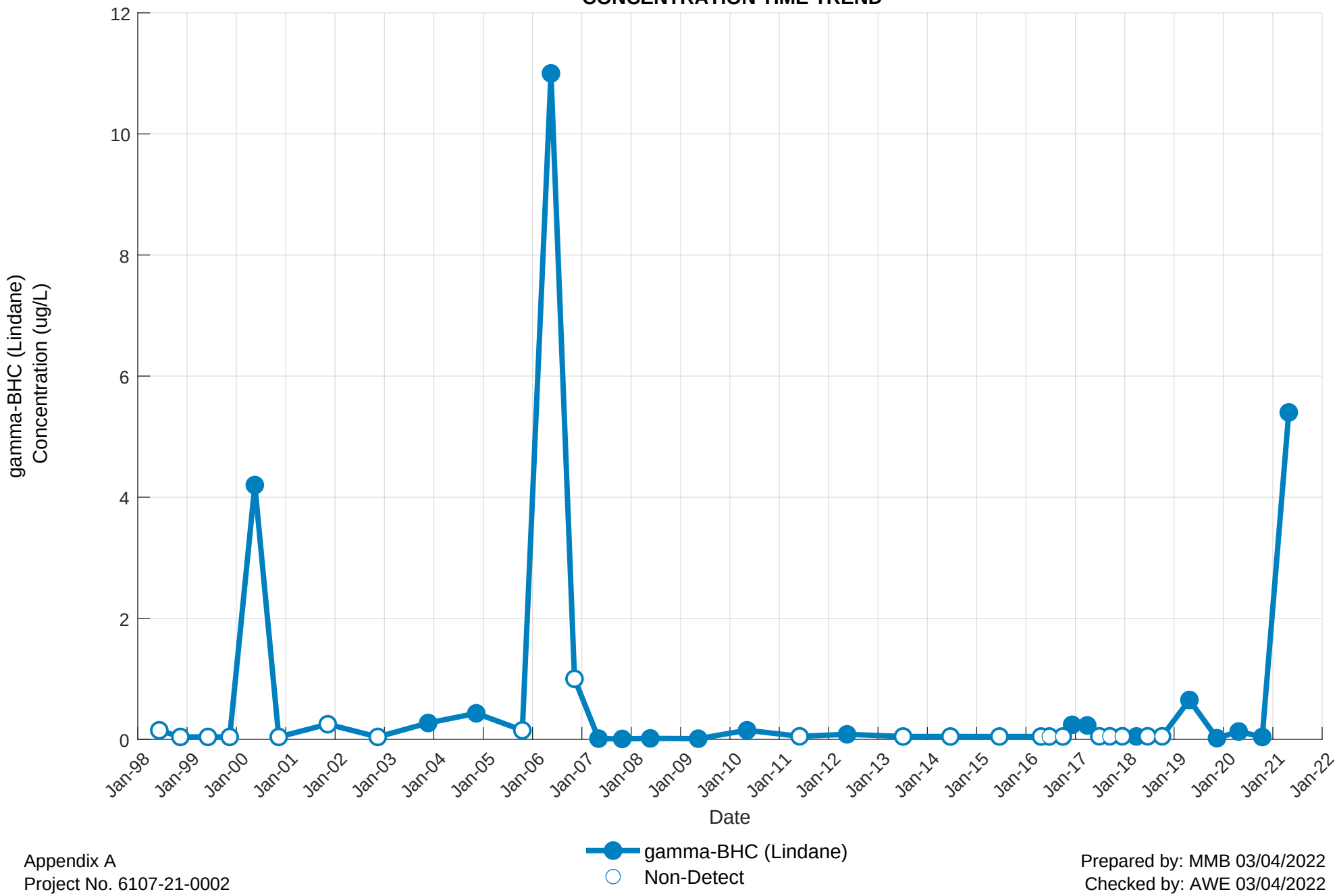
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-6B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

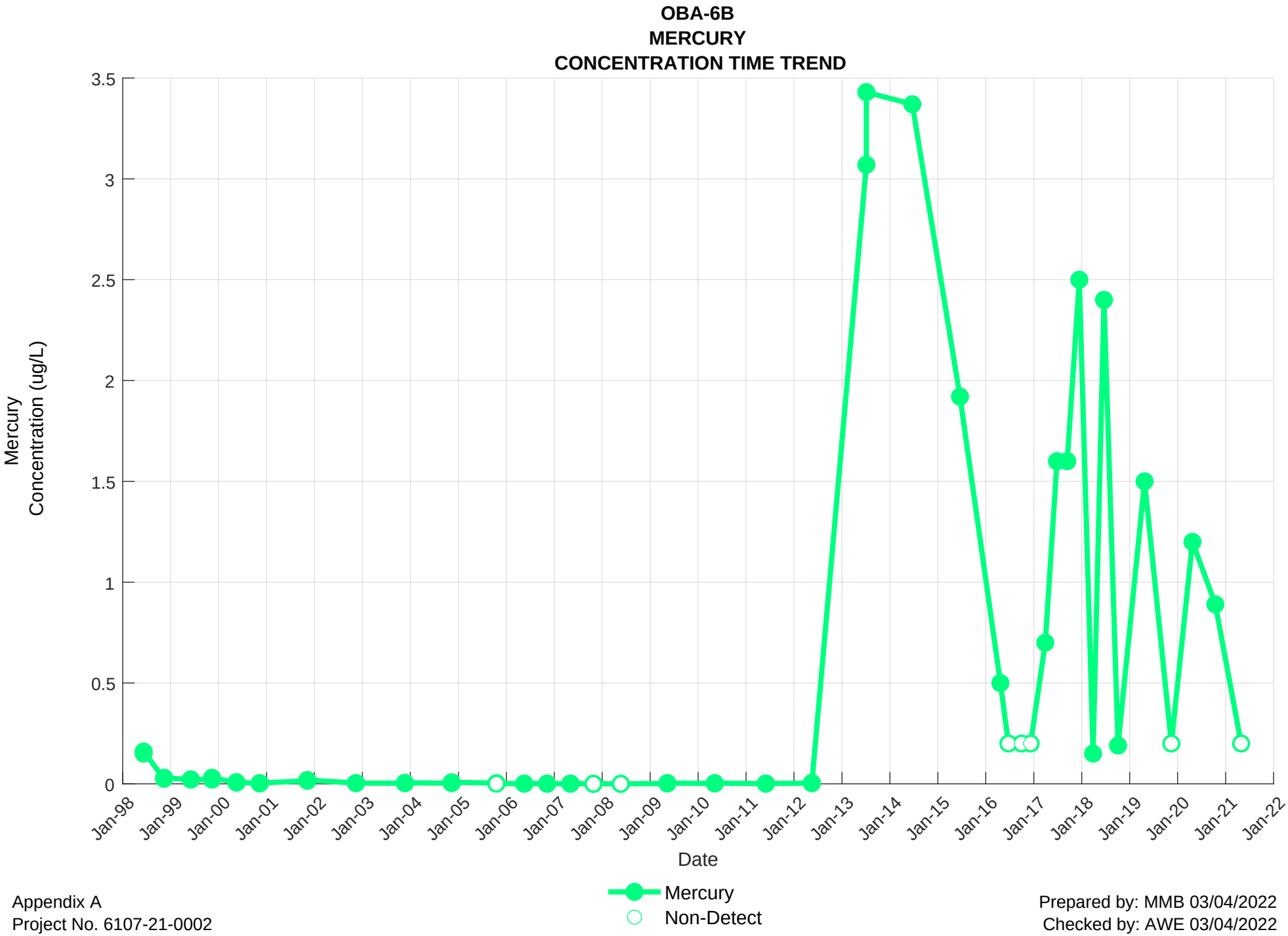


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-6B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

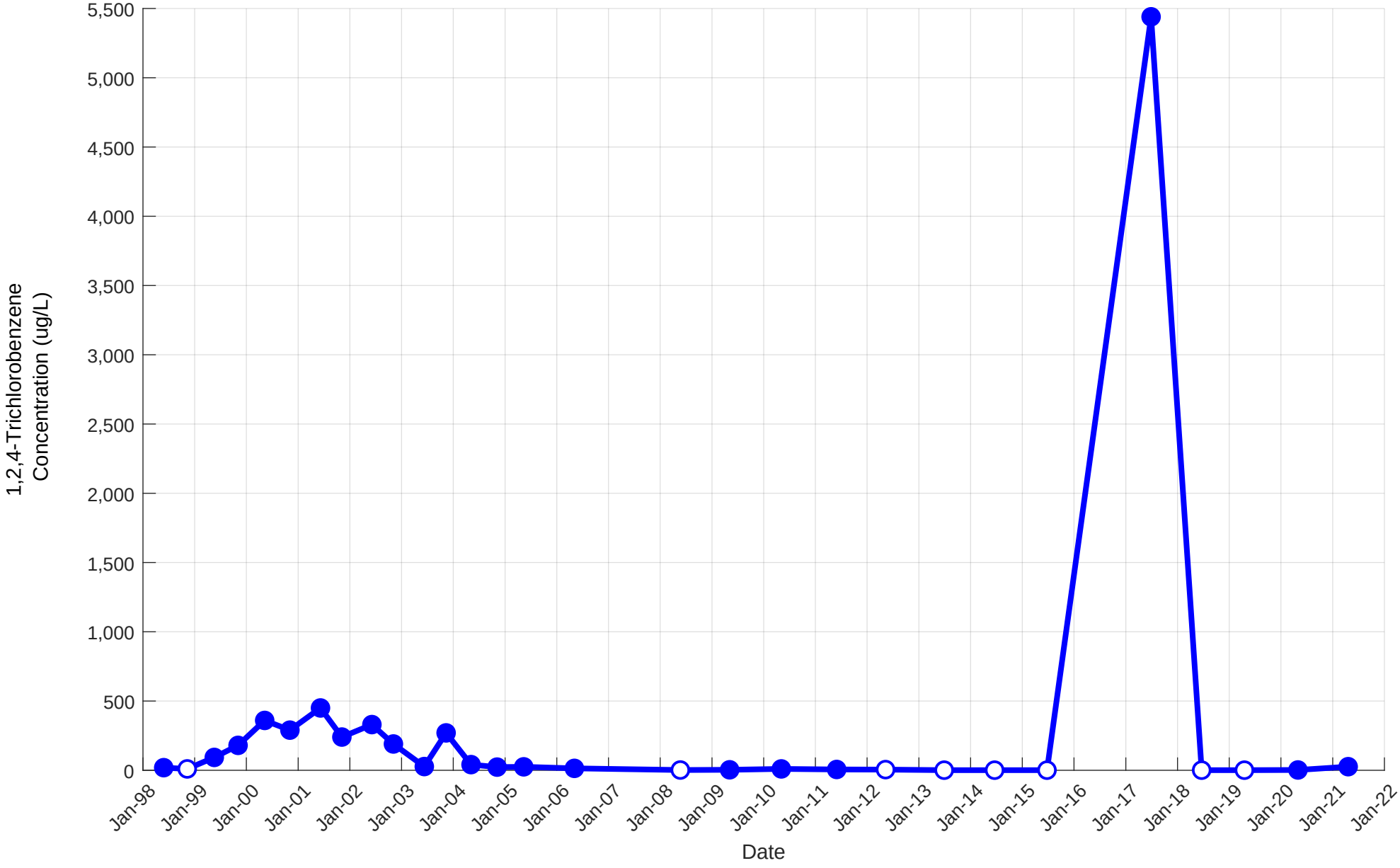


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



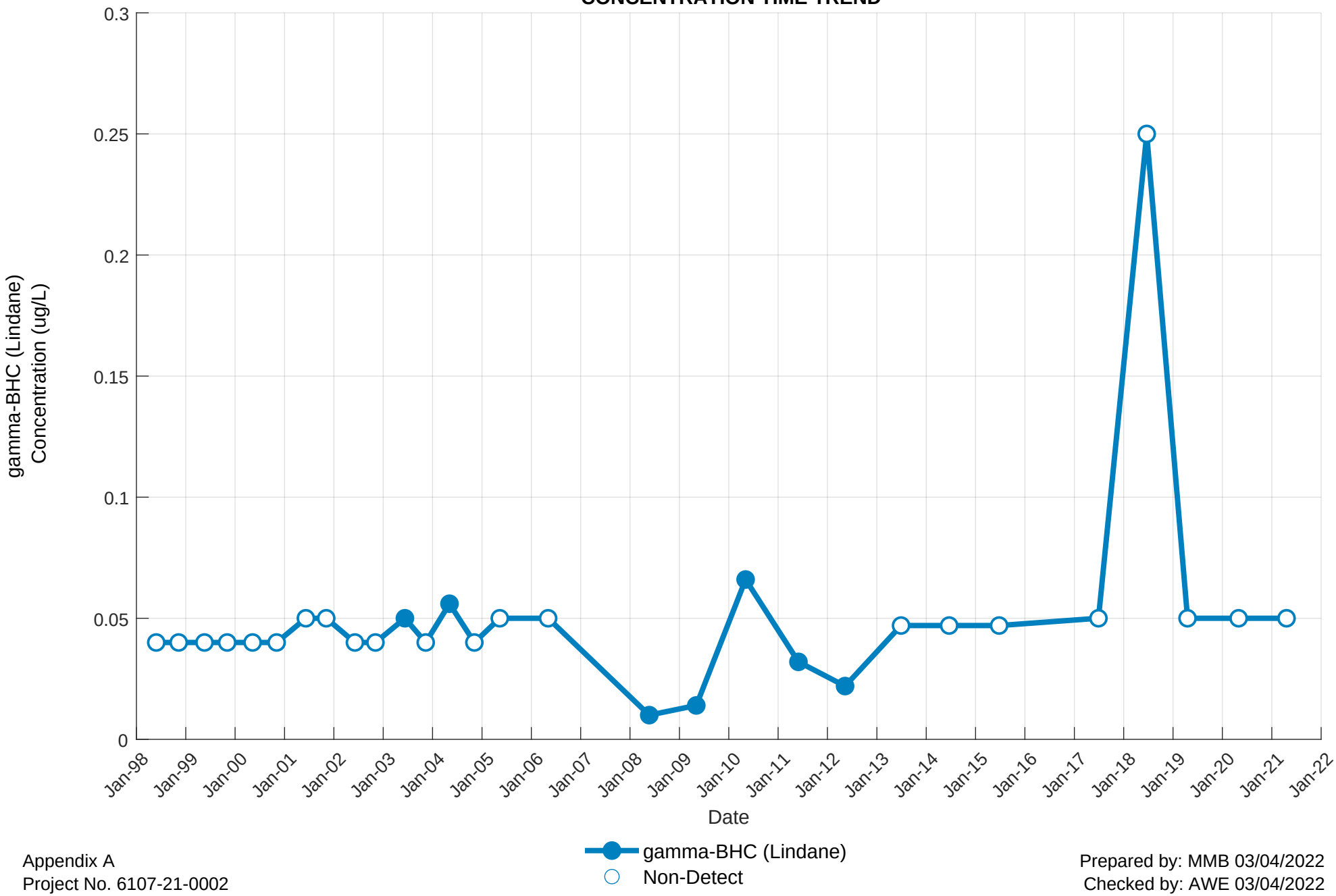
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-8A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

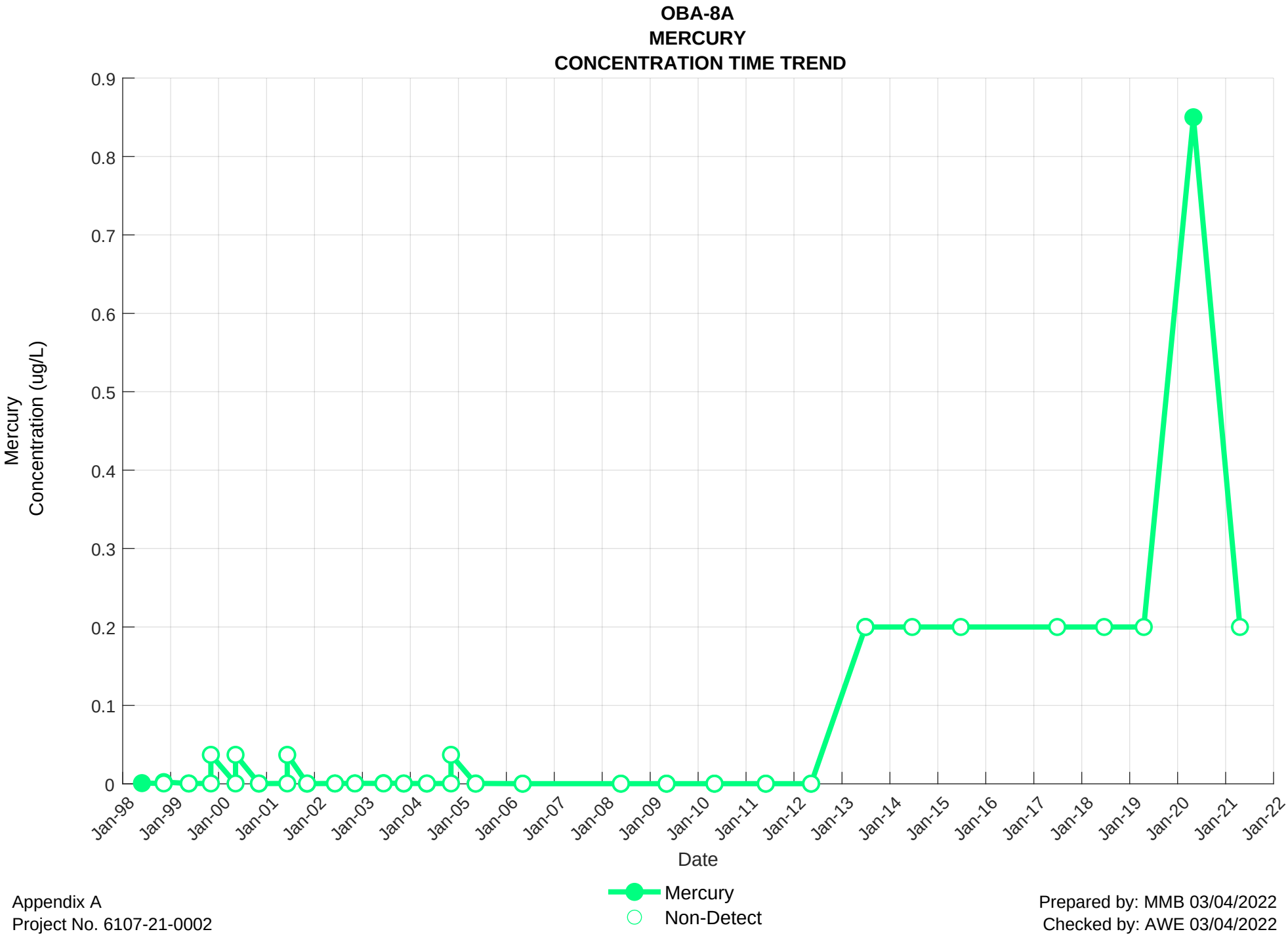


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

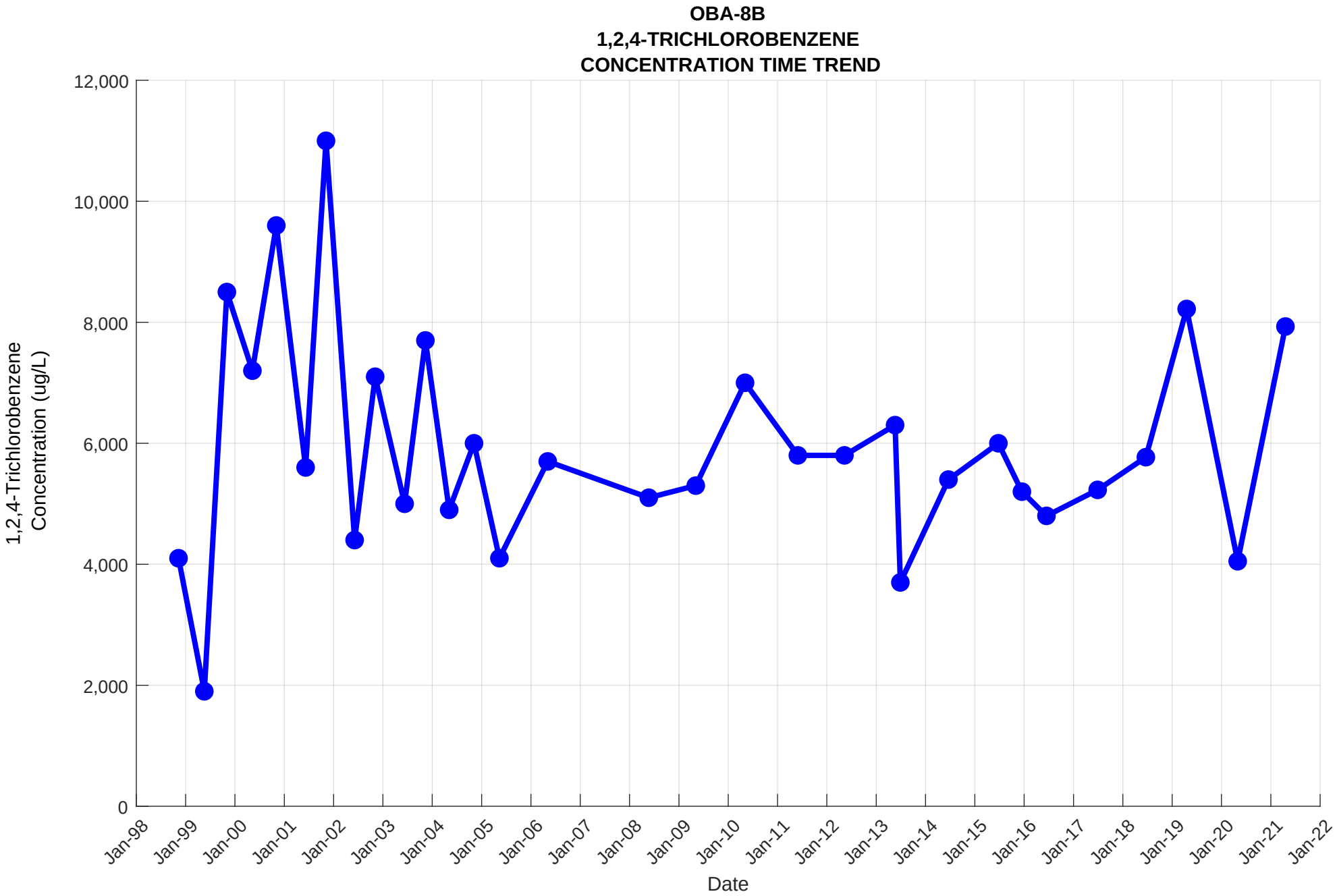
OBA-8A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



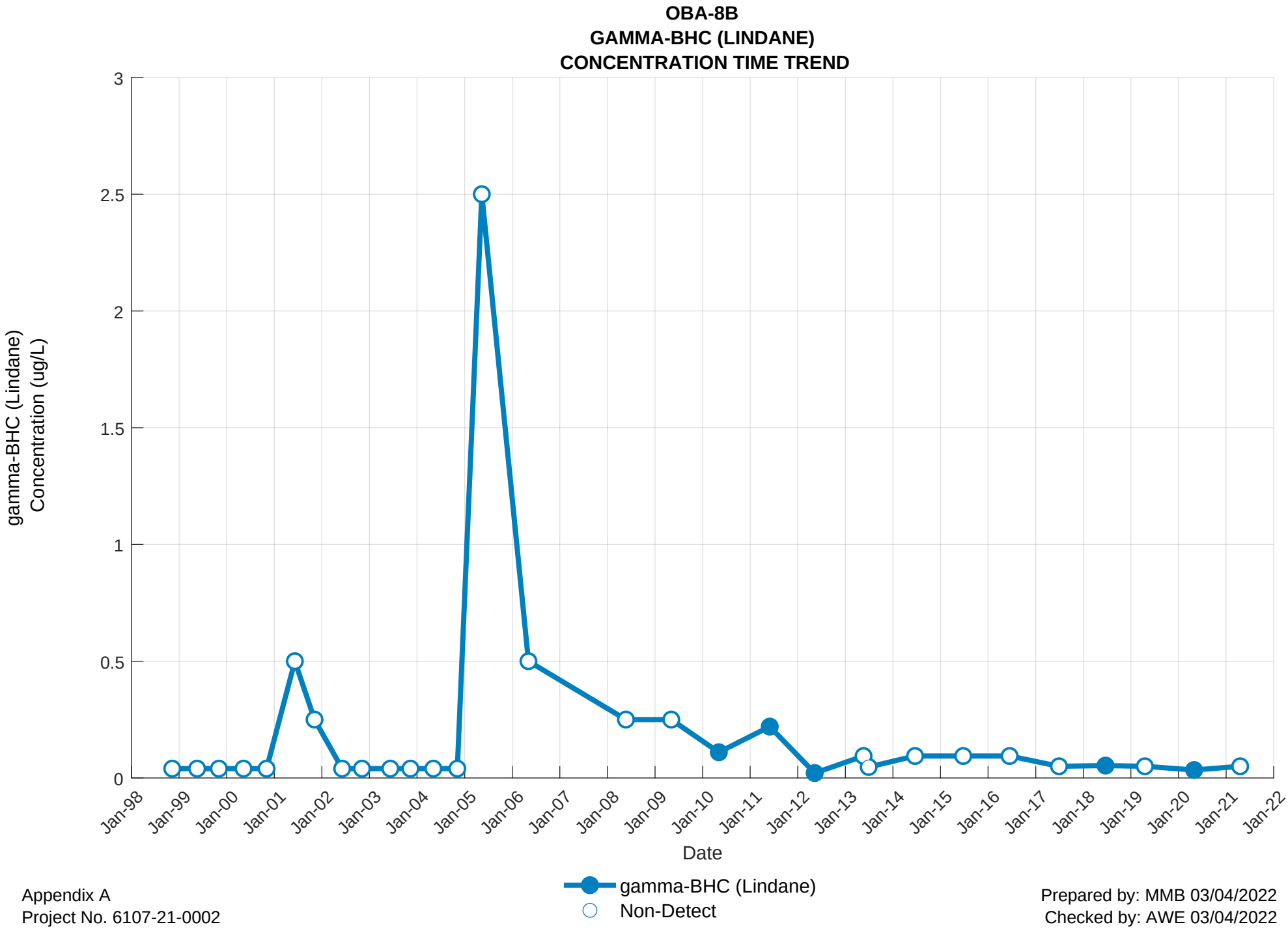
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

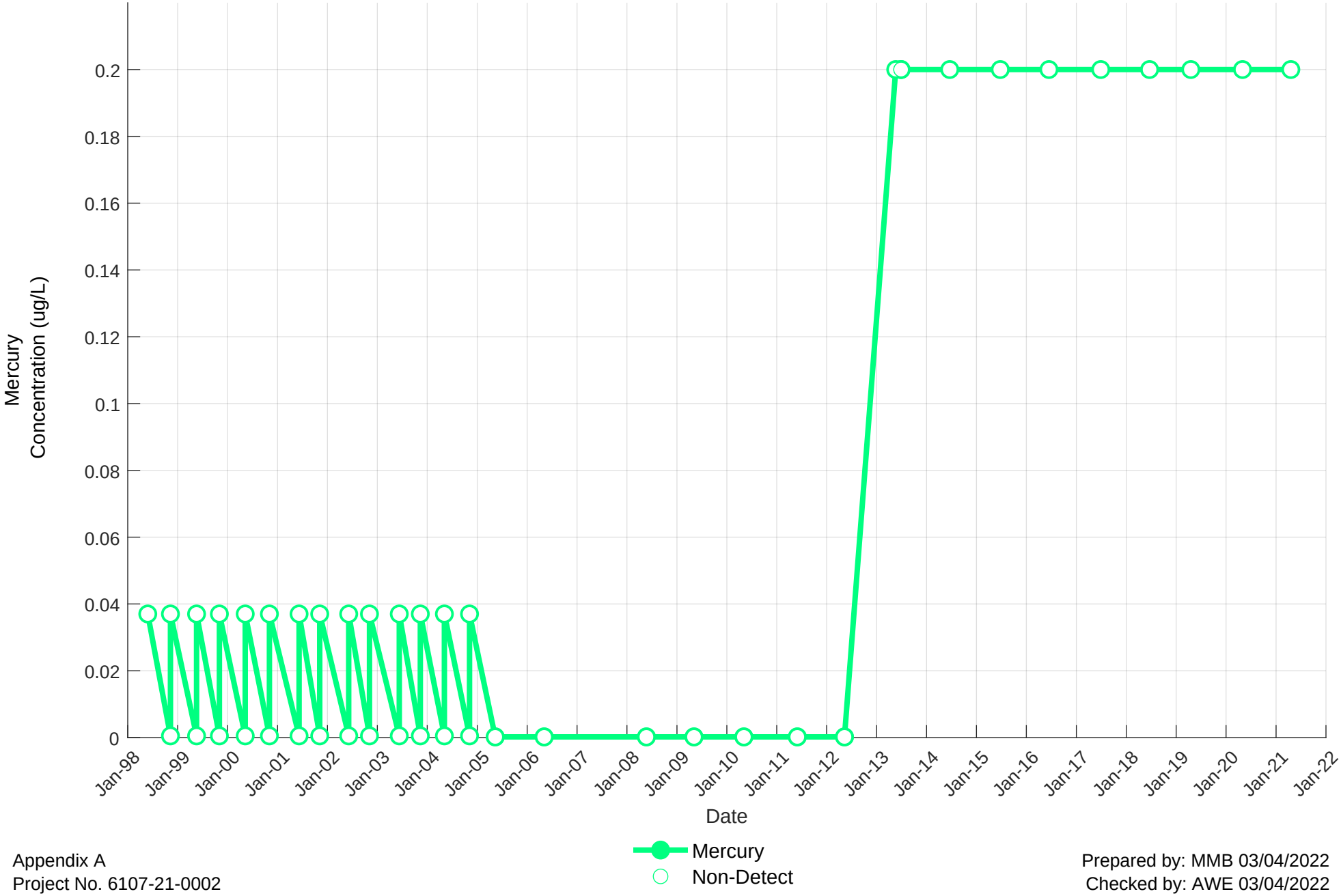


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

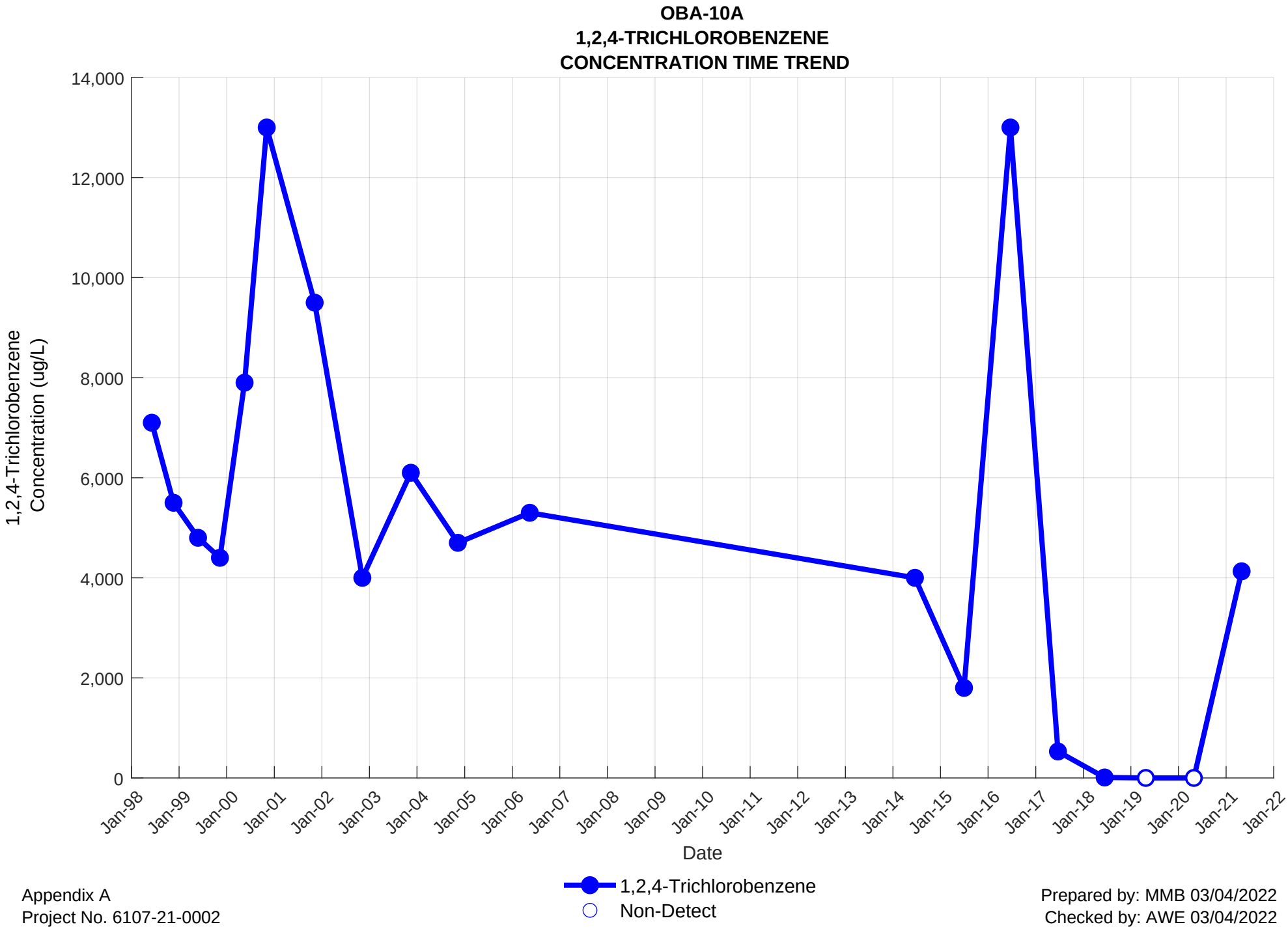


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-8B
MERCURY
CONCENTRATION TIME TREND

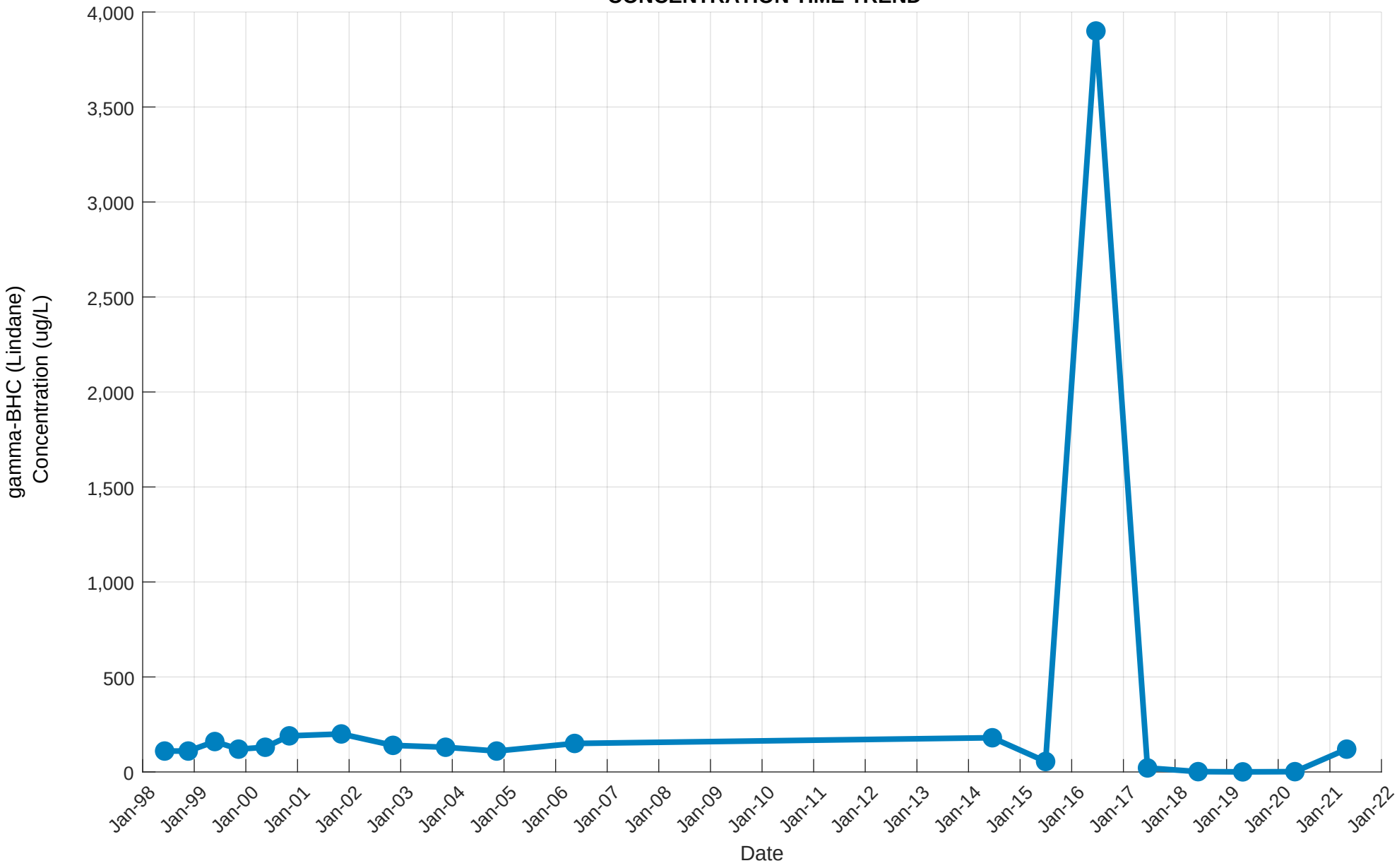


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

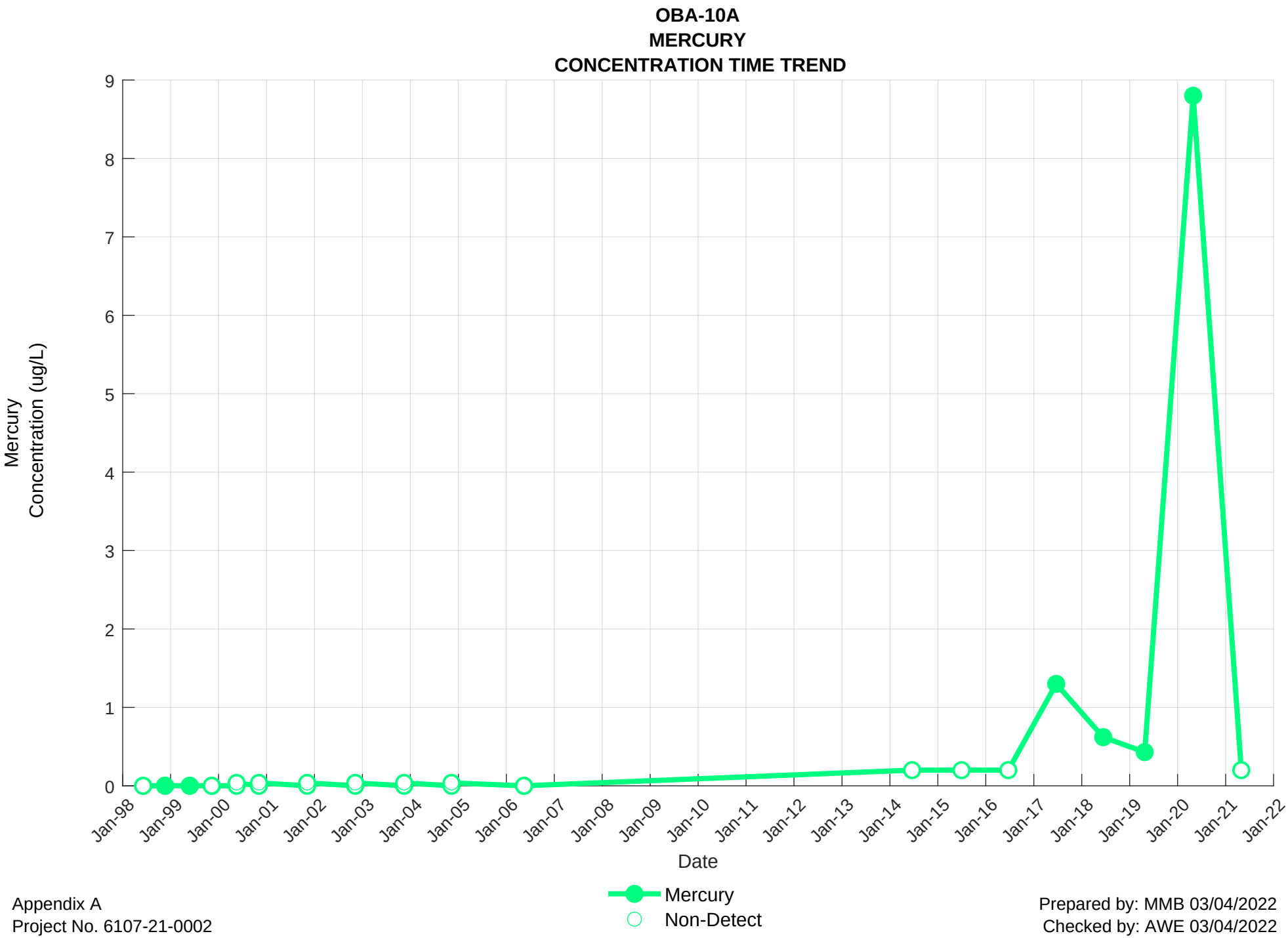


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

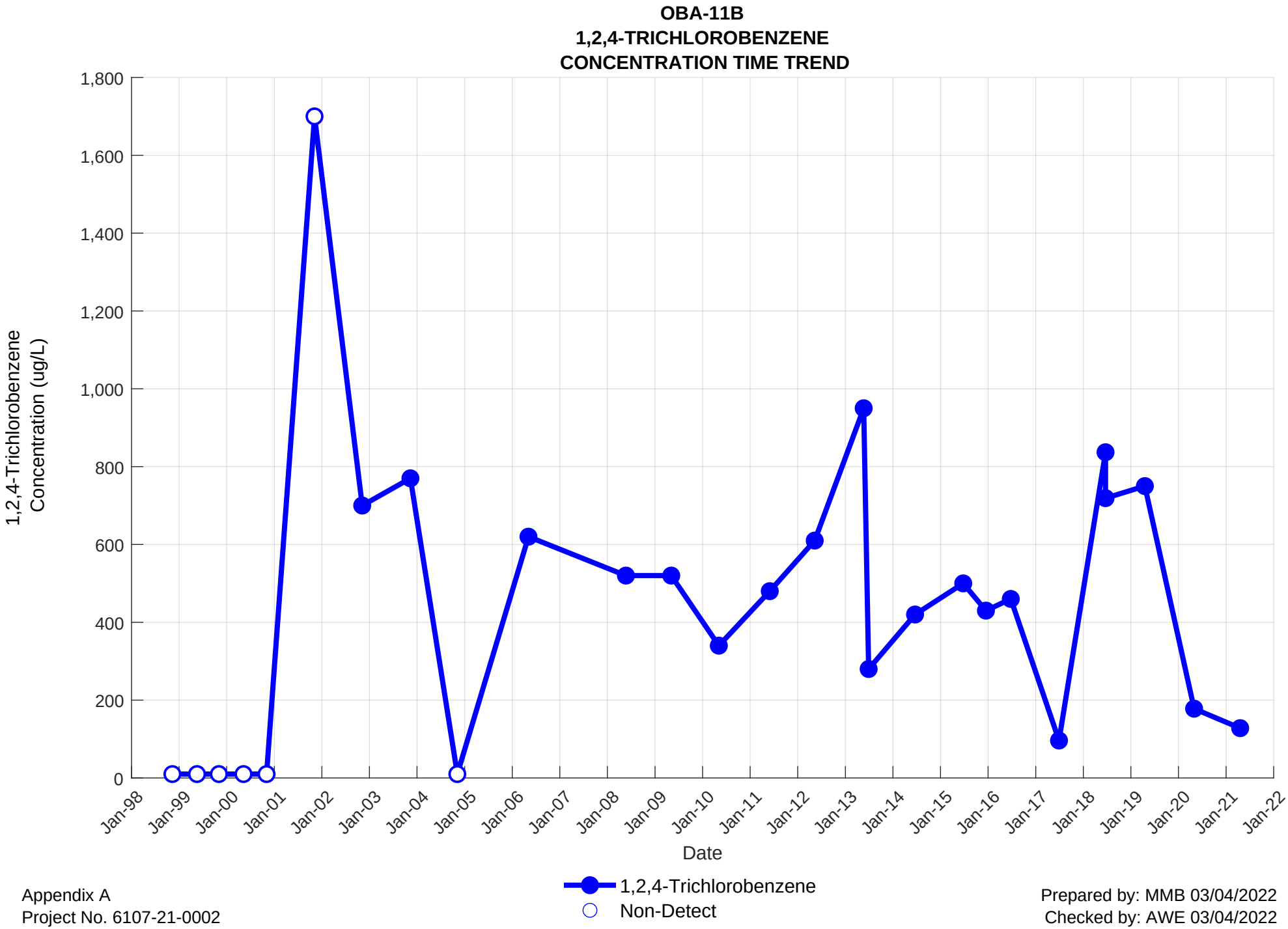
OBA-10A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

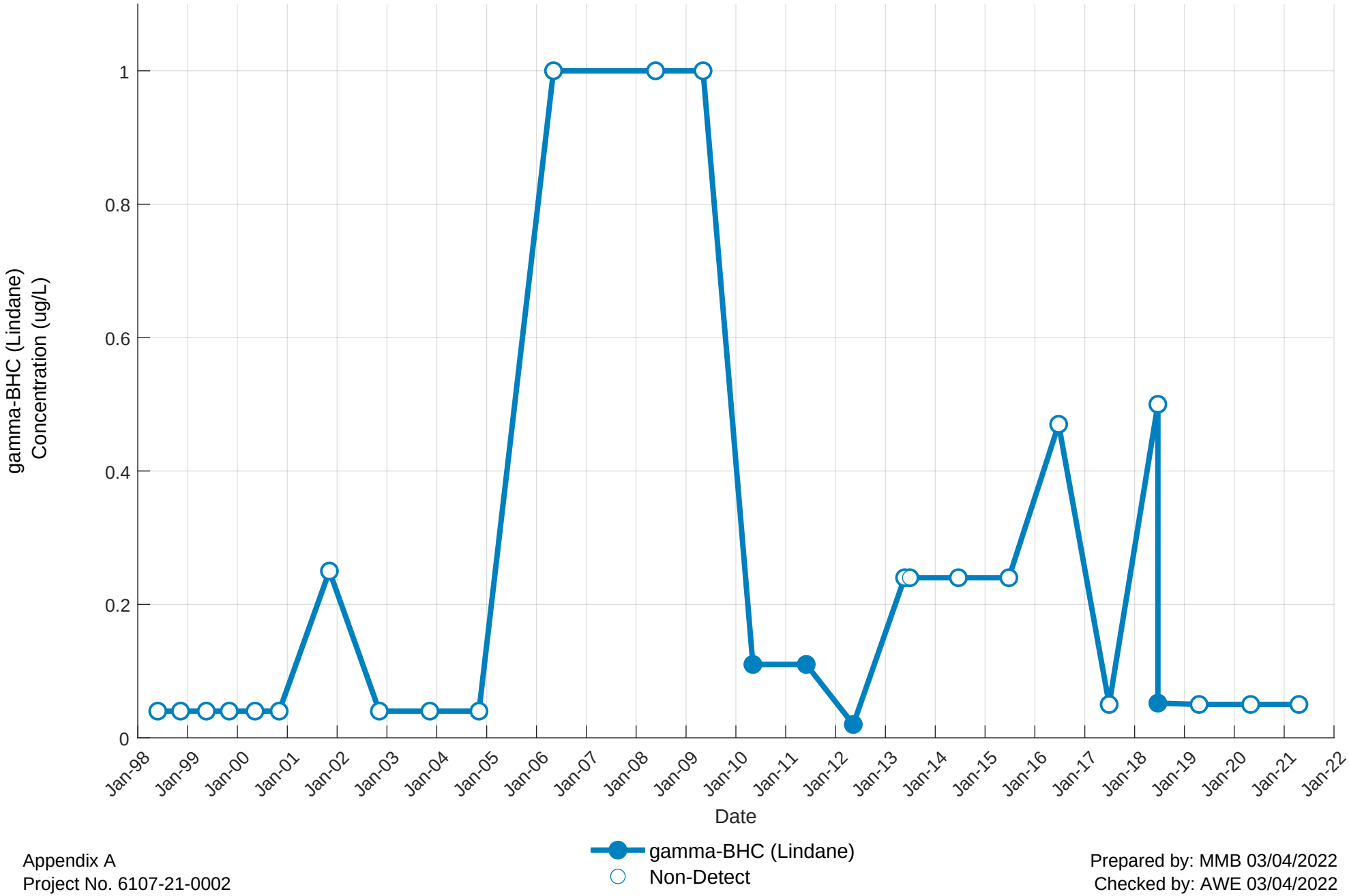


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



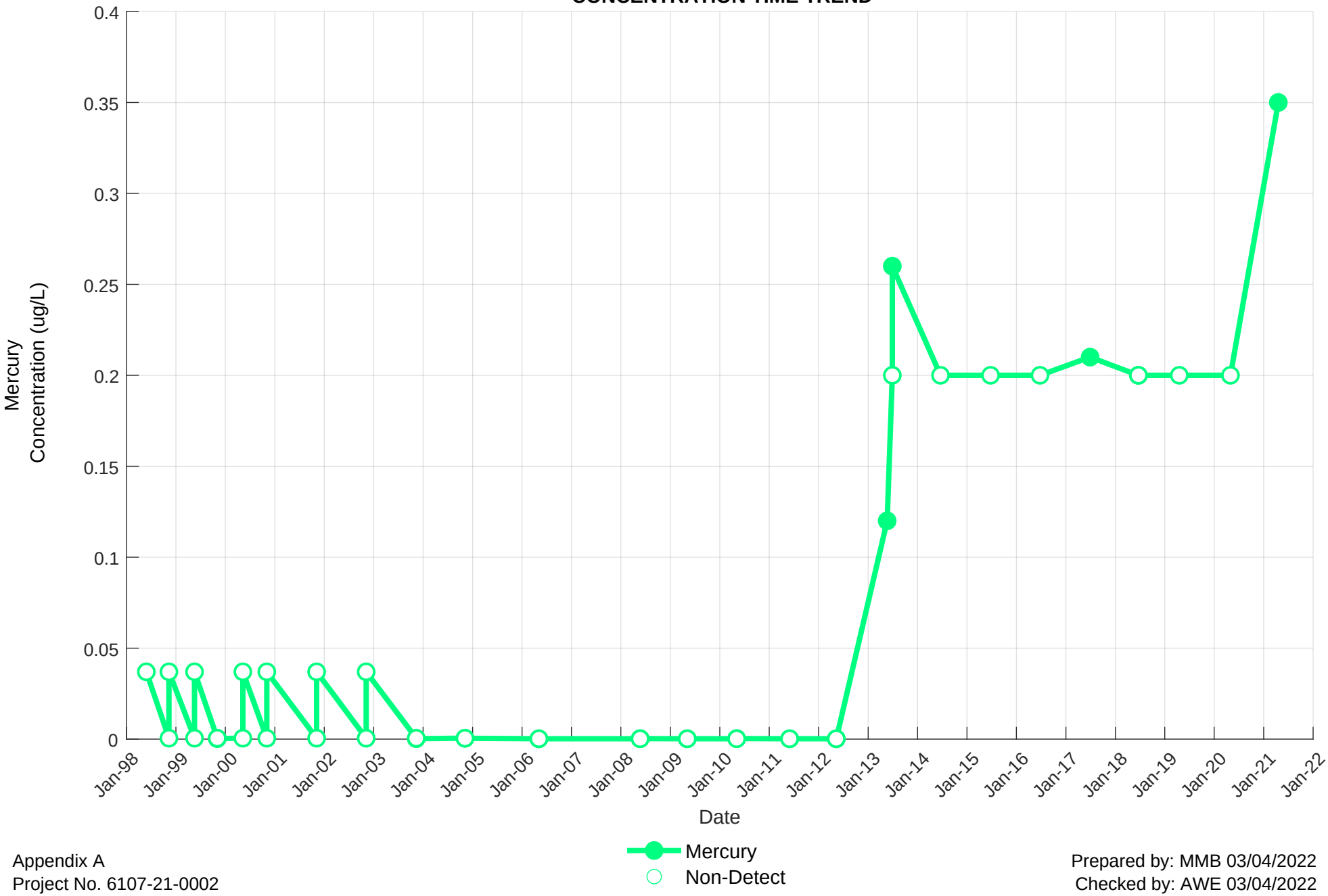
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-11B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

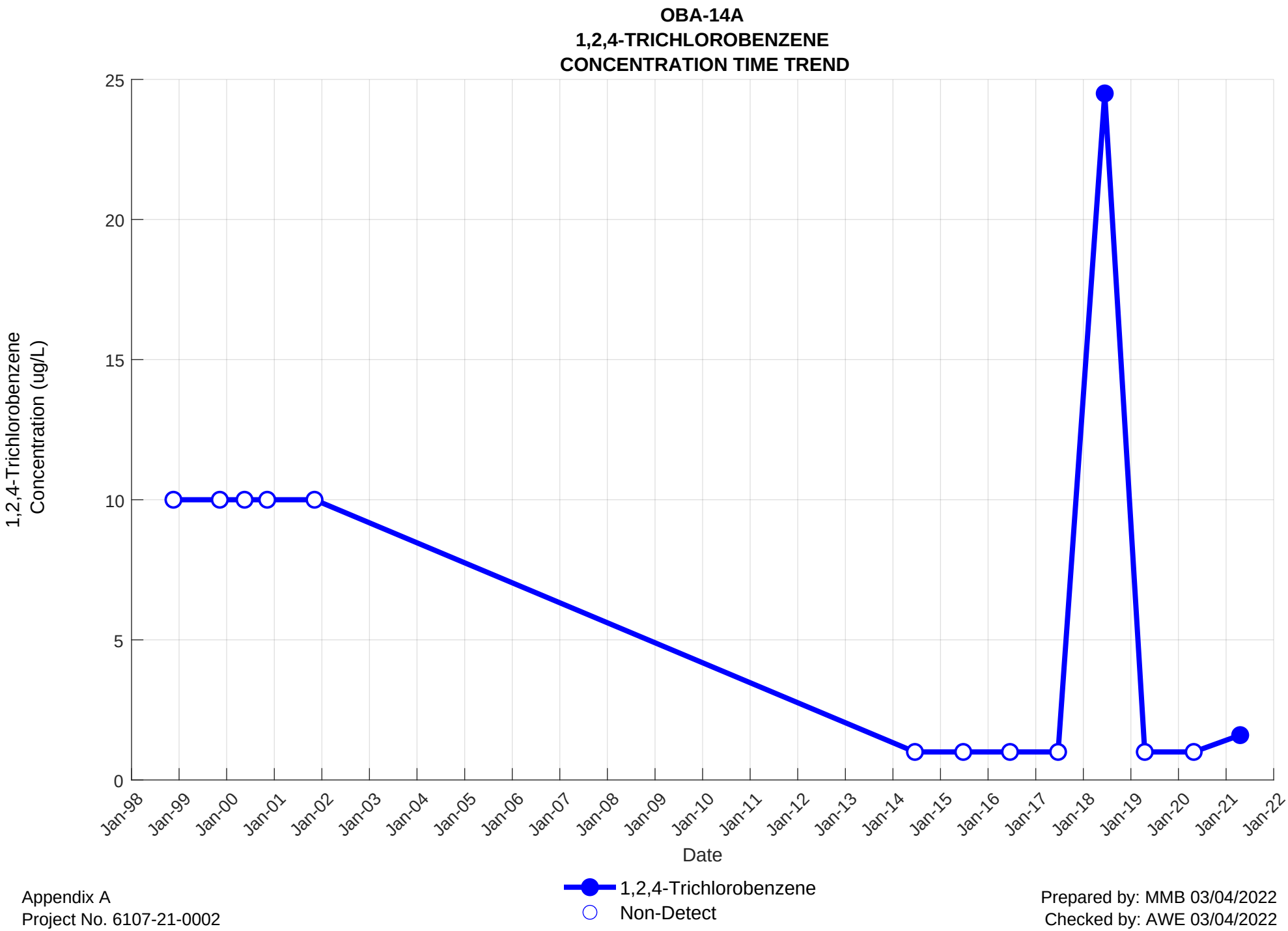


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-11B
MERCURY
CONCENTRATION TIME TREND

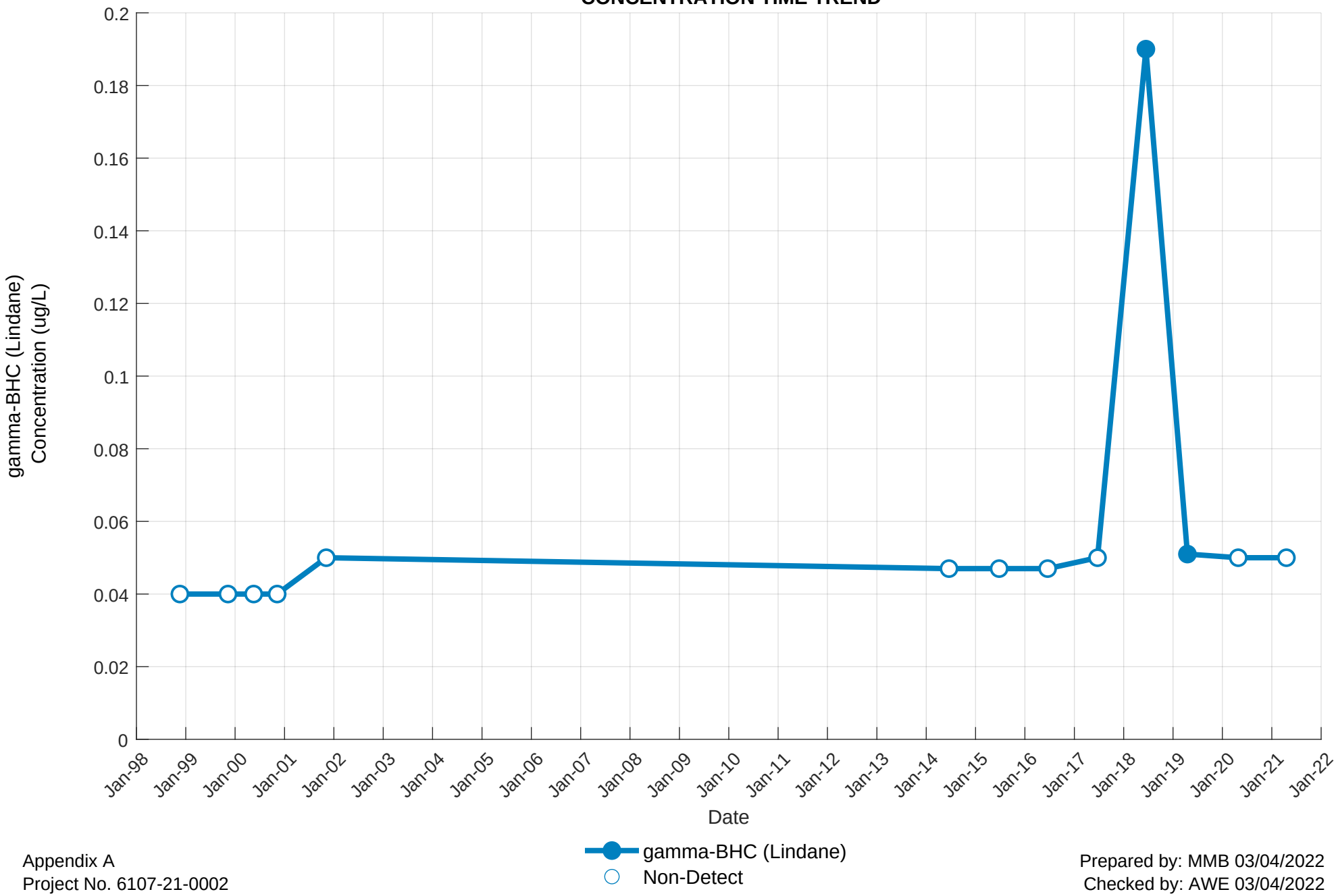


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

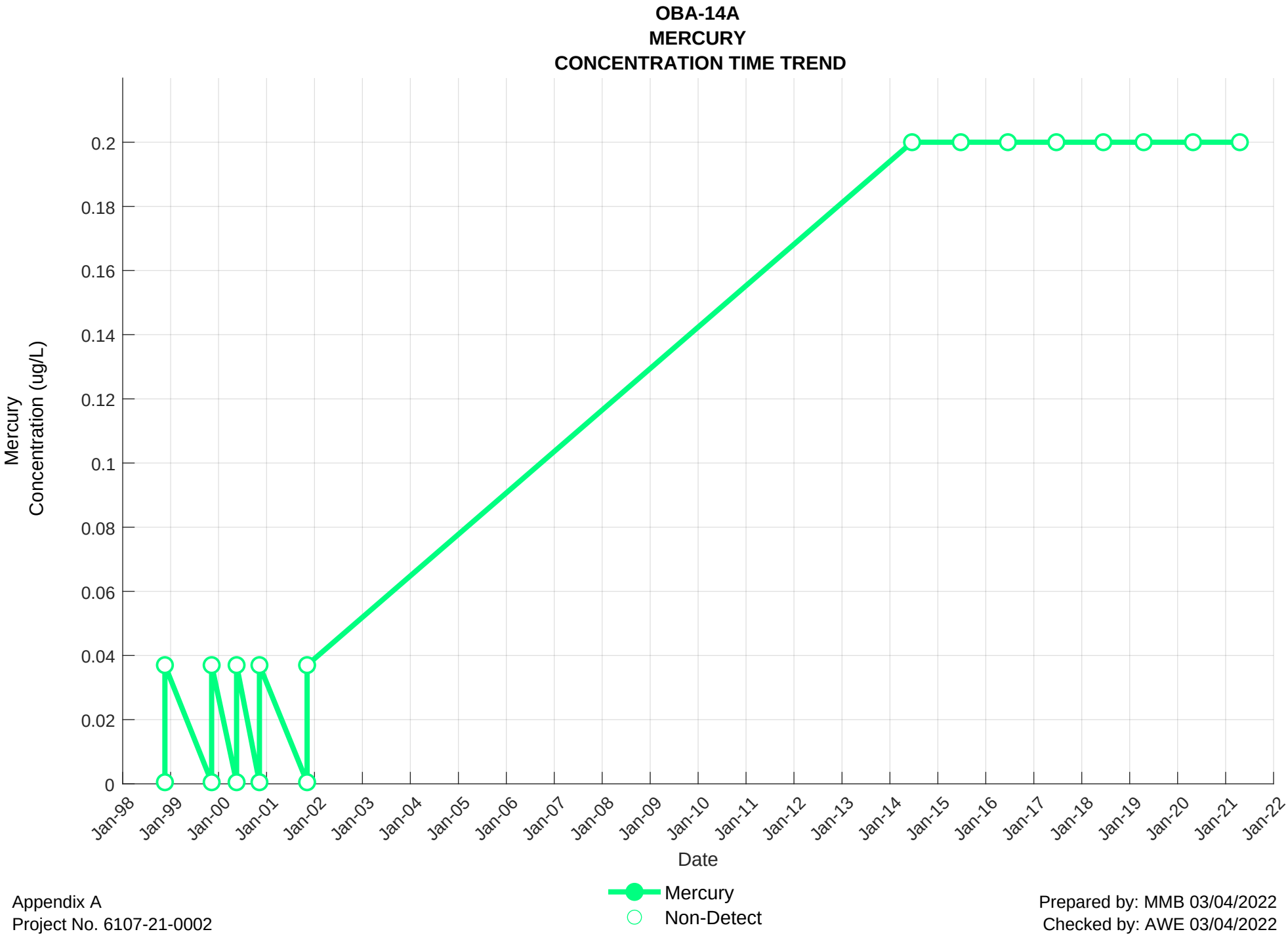


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-14A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



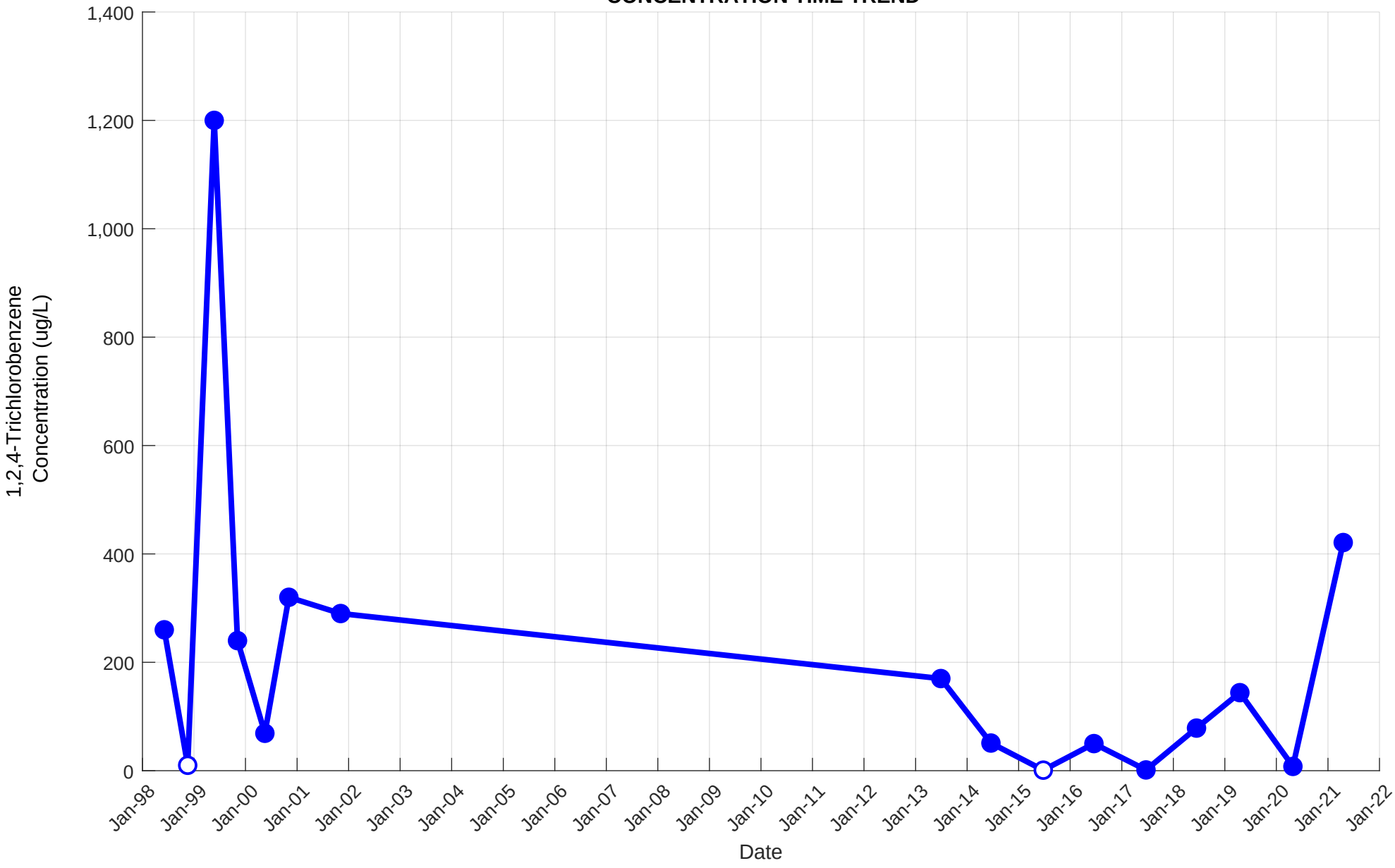
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

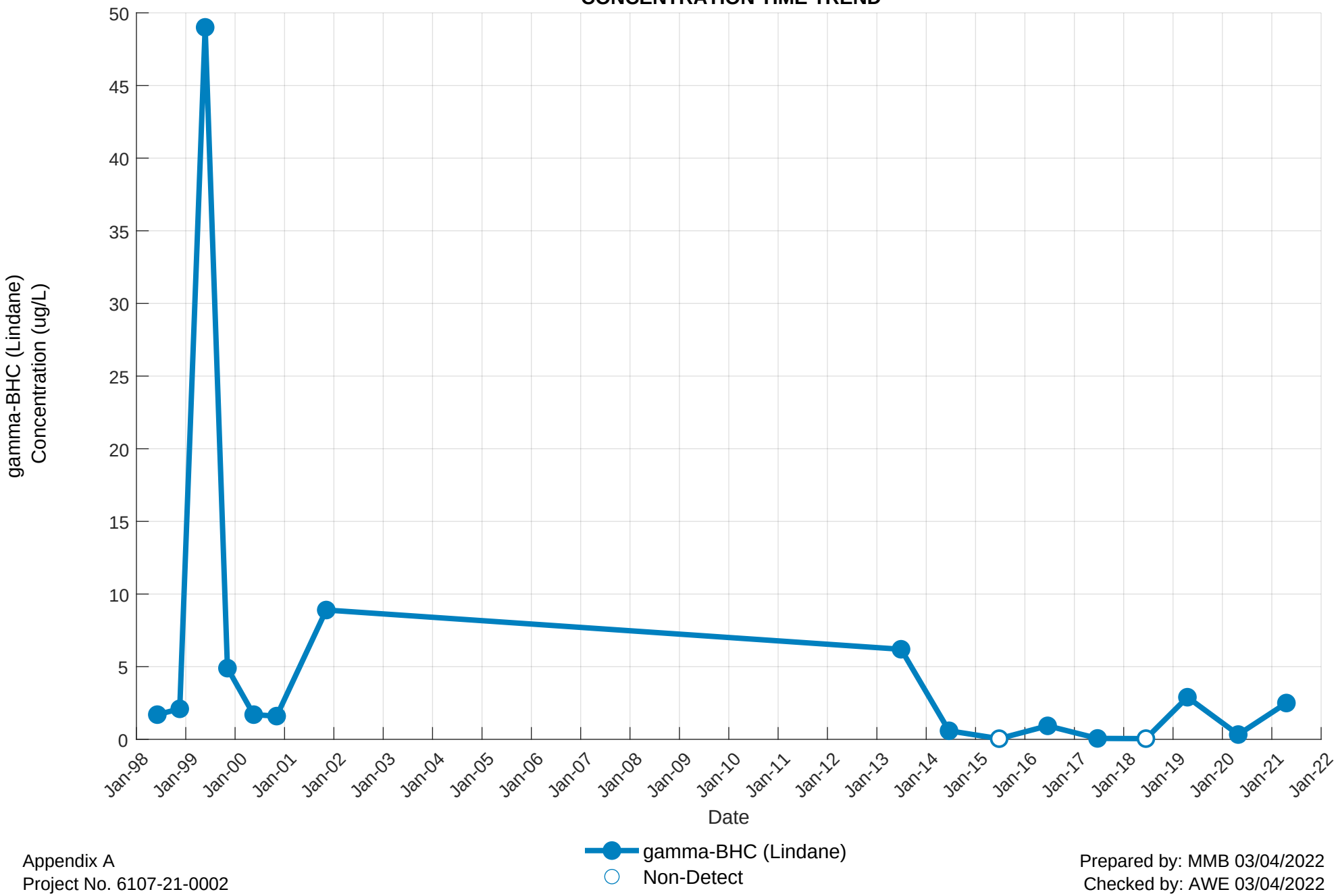
March 30, 2022

OBA-14B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



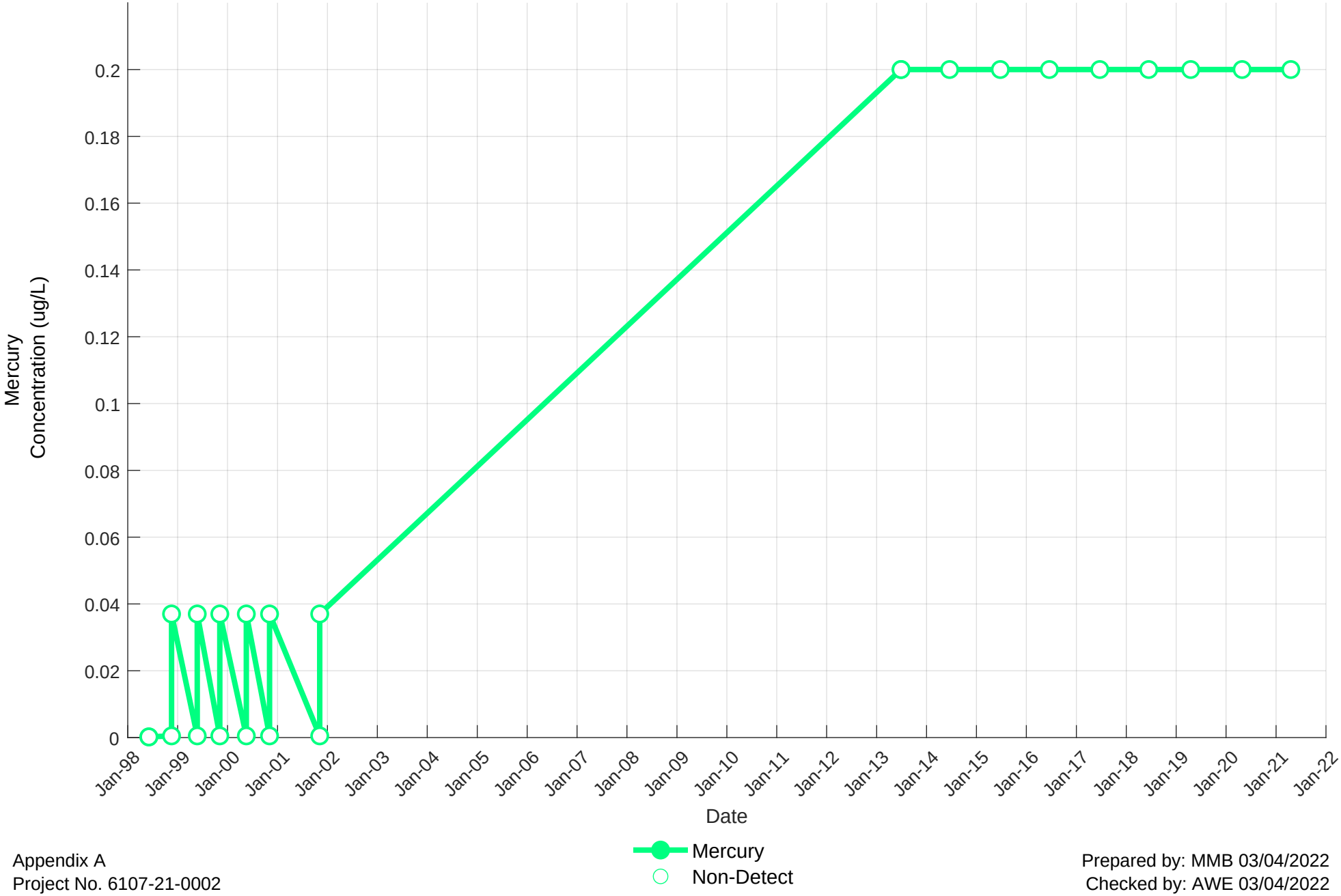
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-14B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



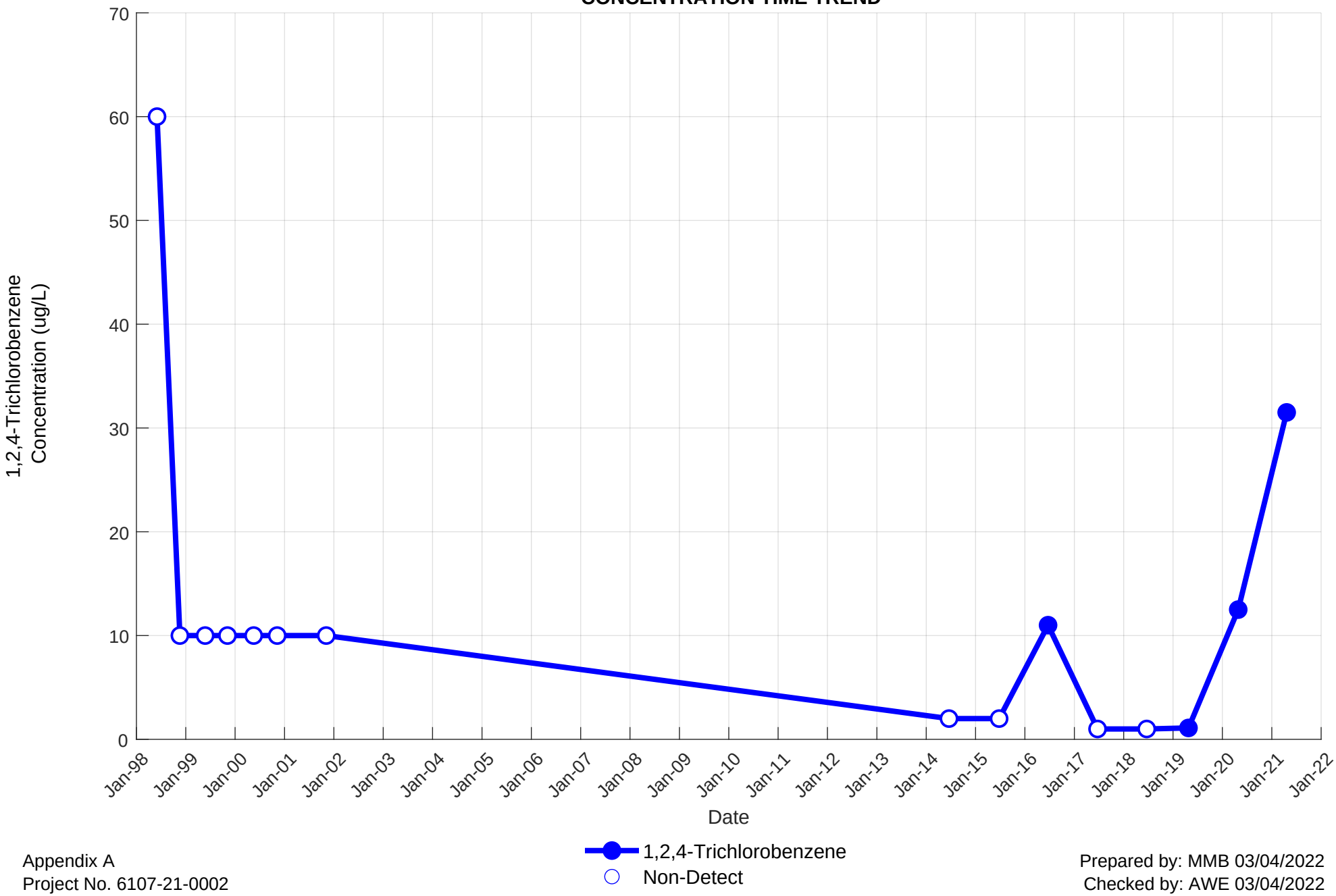
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-14B
MERCURY
CONCENTRATION TIME TREND



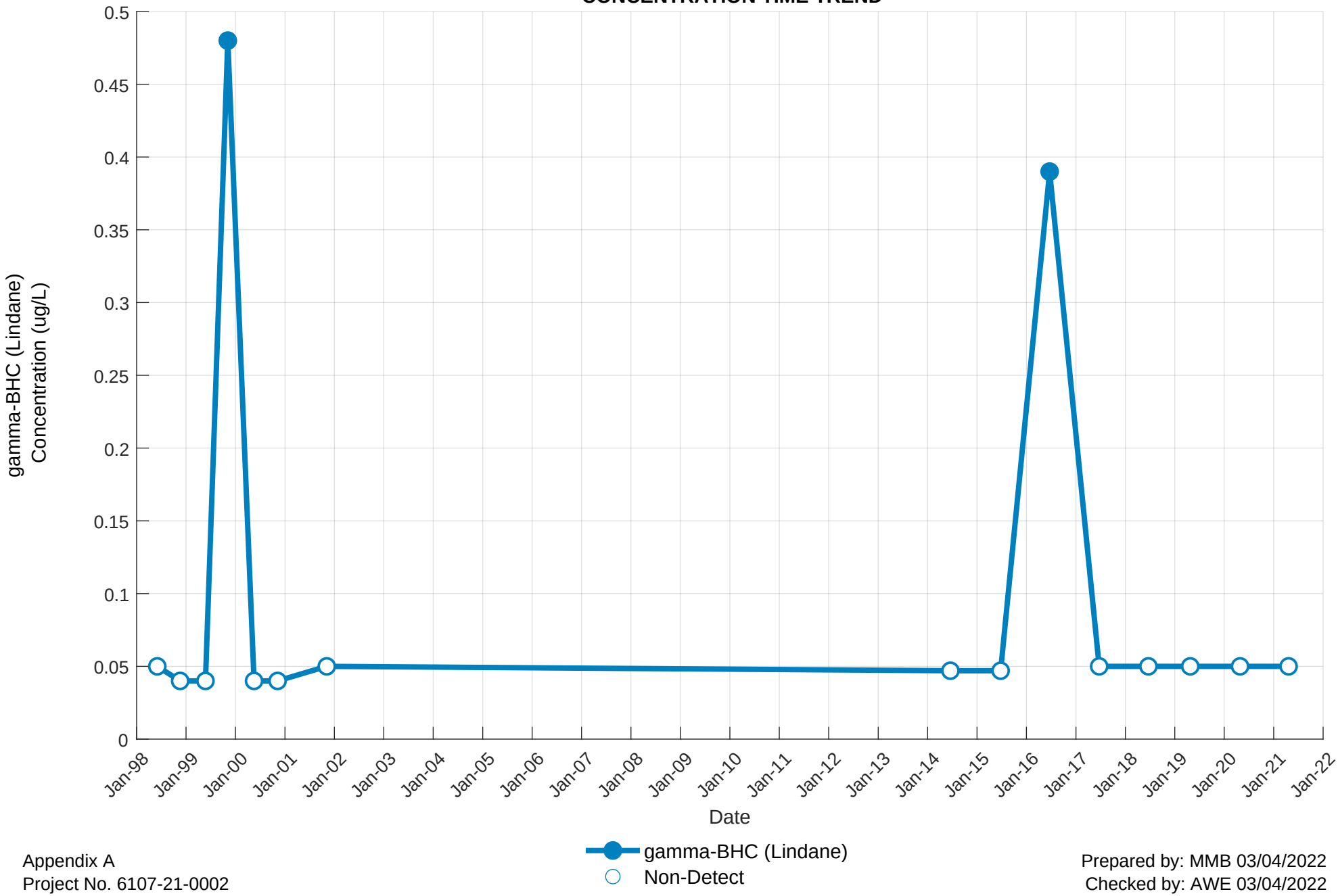
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-15A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

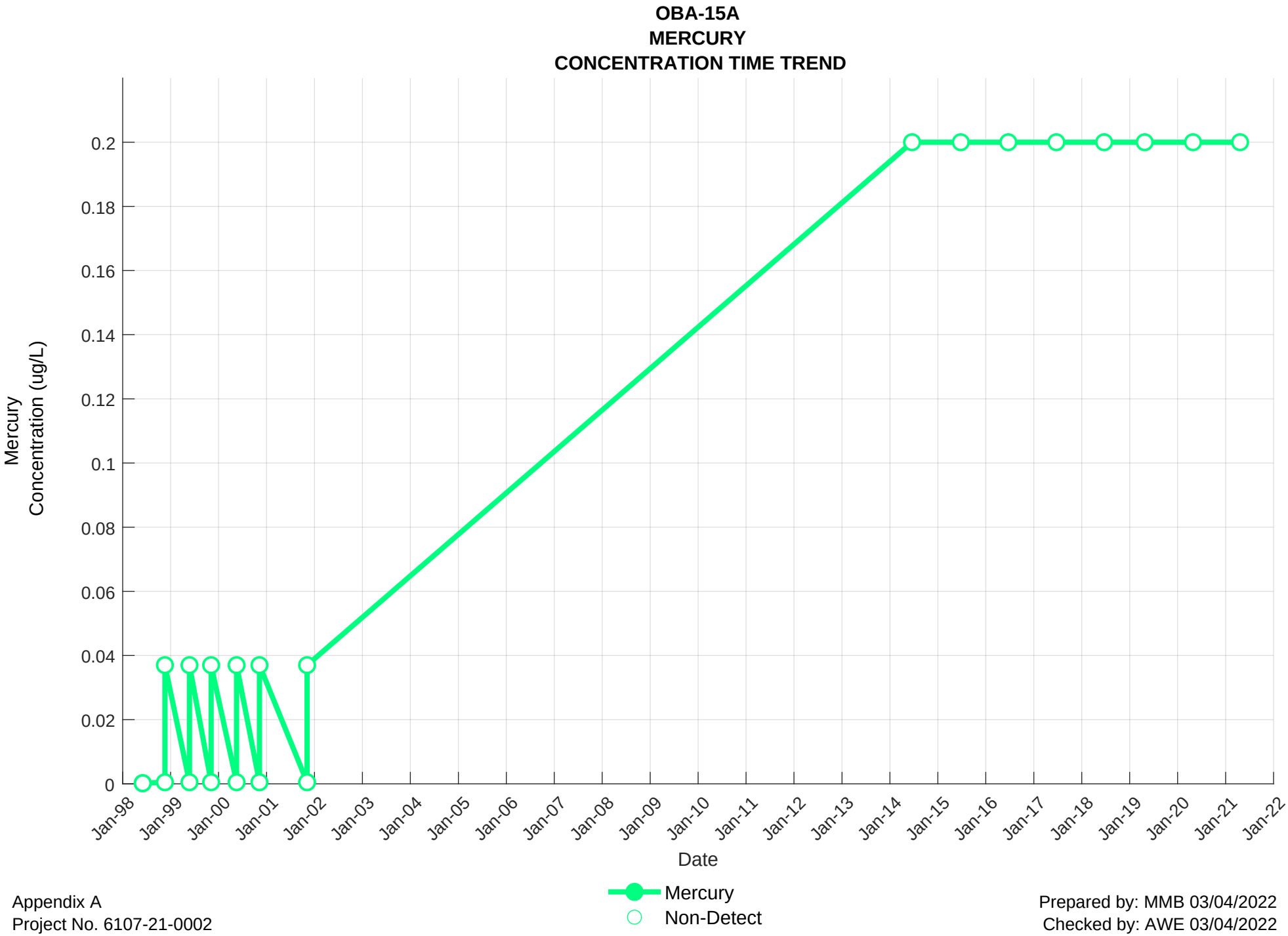


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

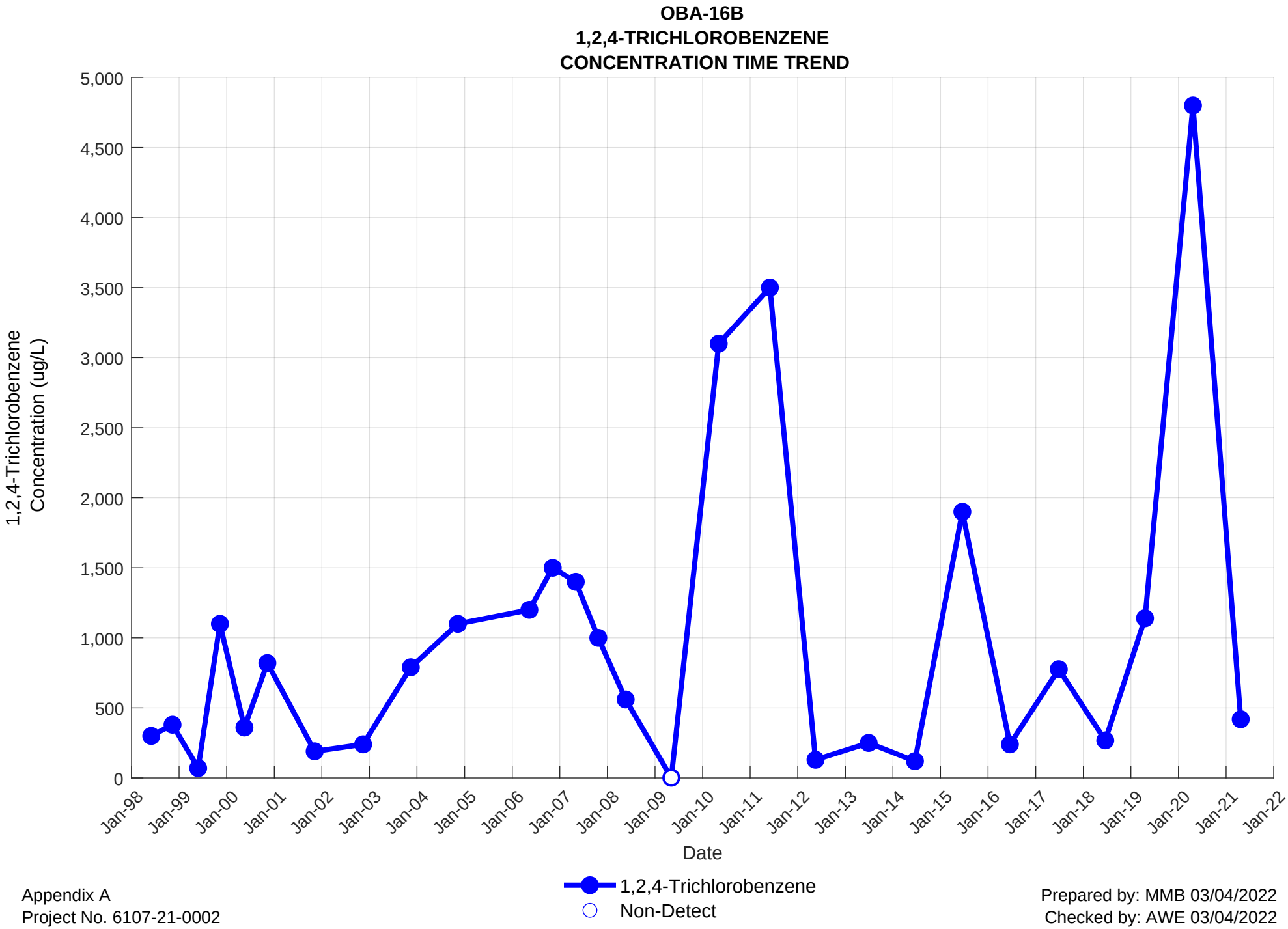
OBA-15A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

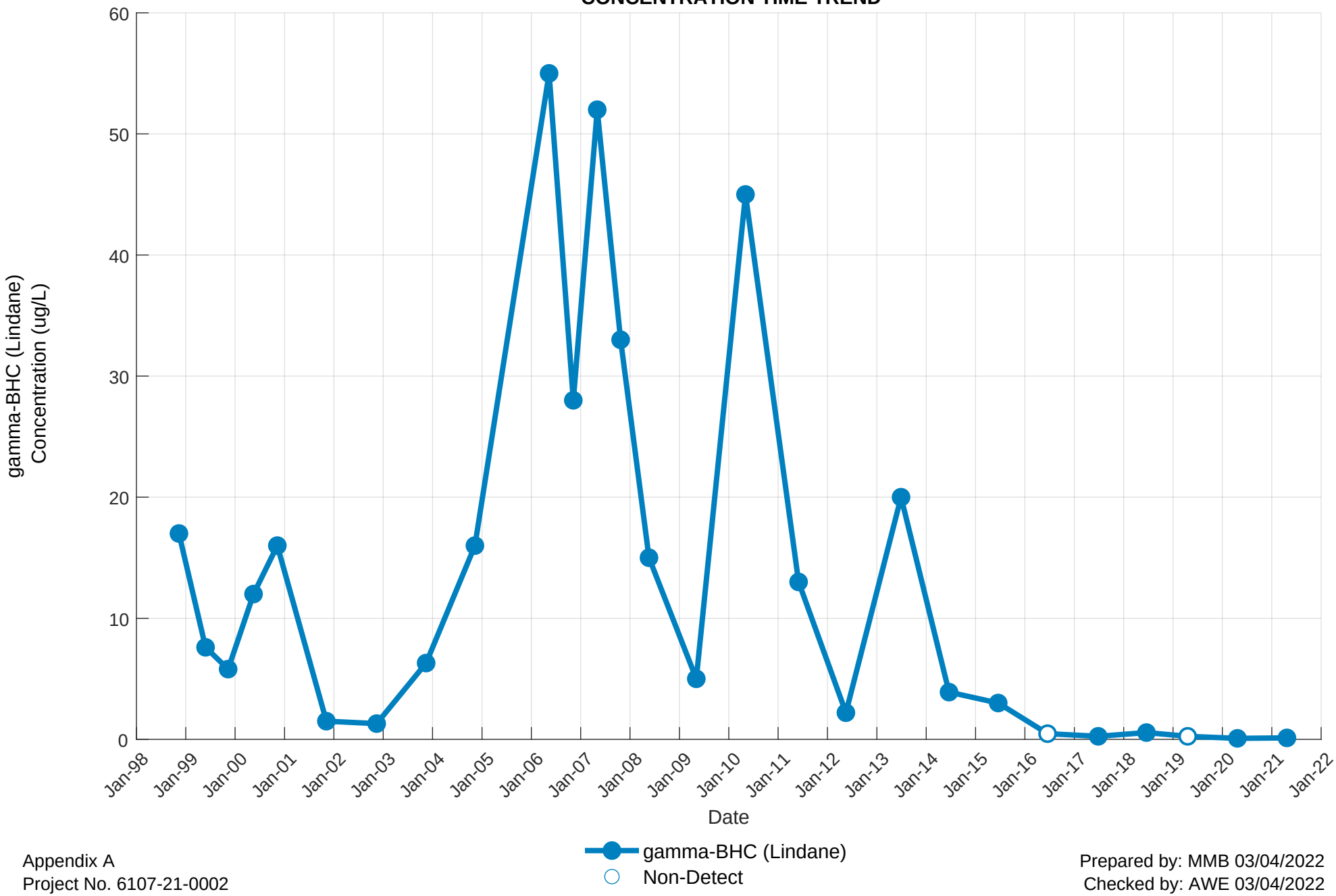


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



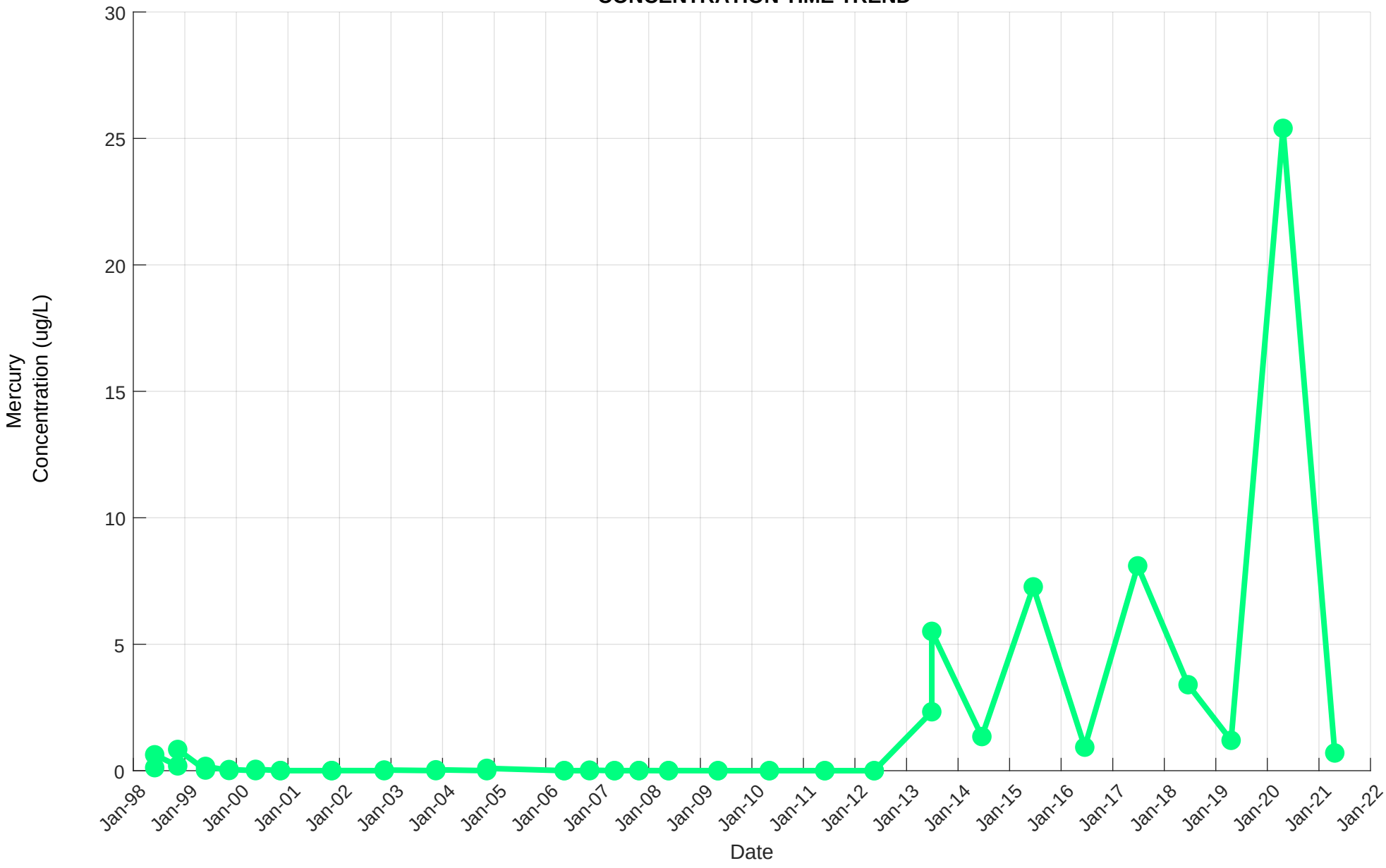
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-16B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

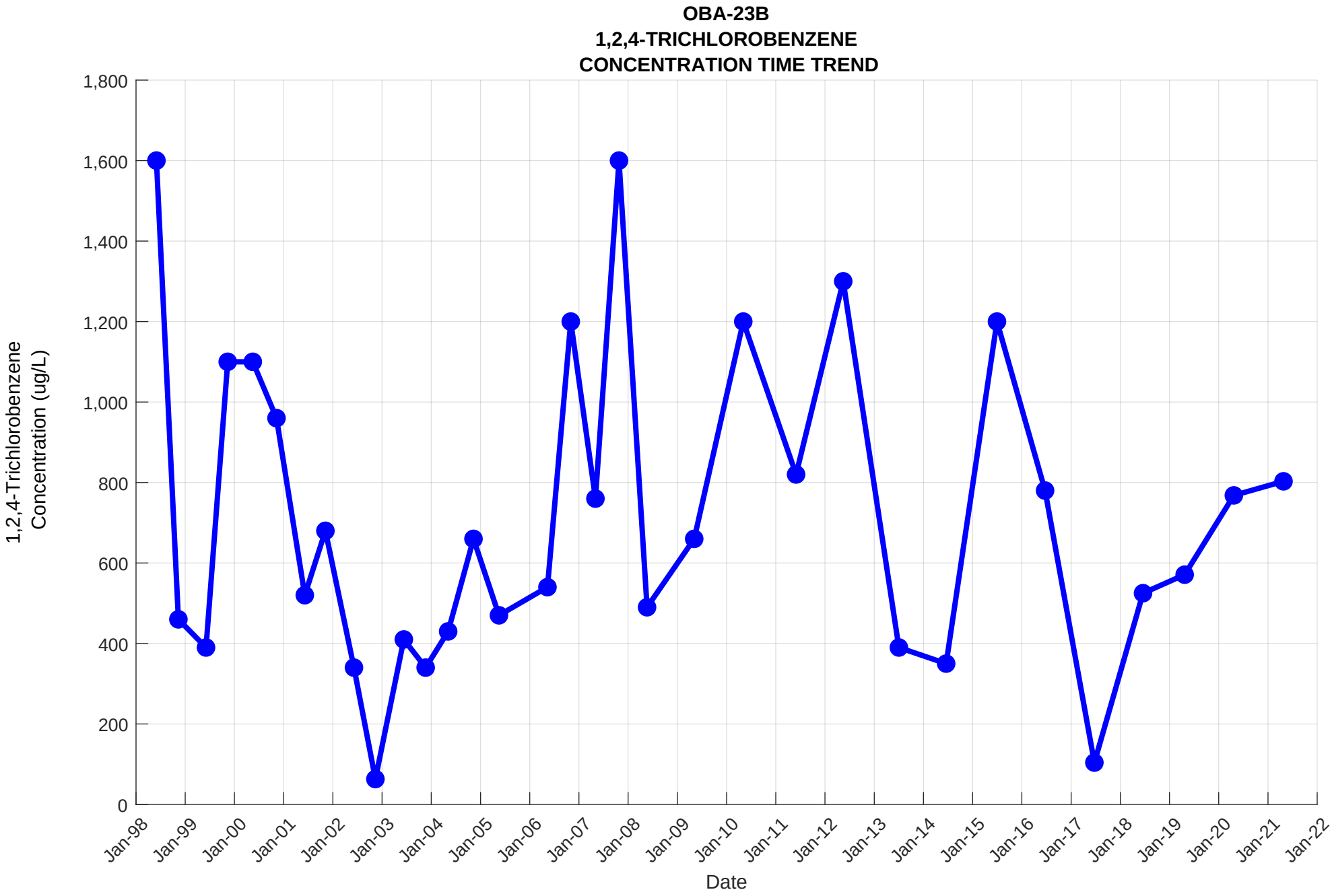


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-16B
MERCURY
CONCENTRATION TIME TREND

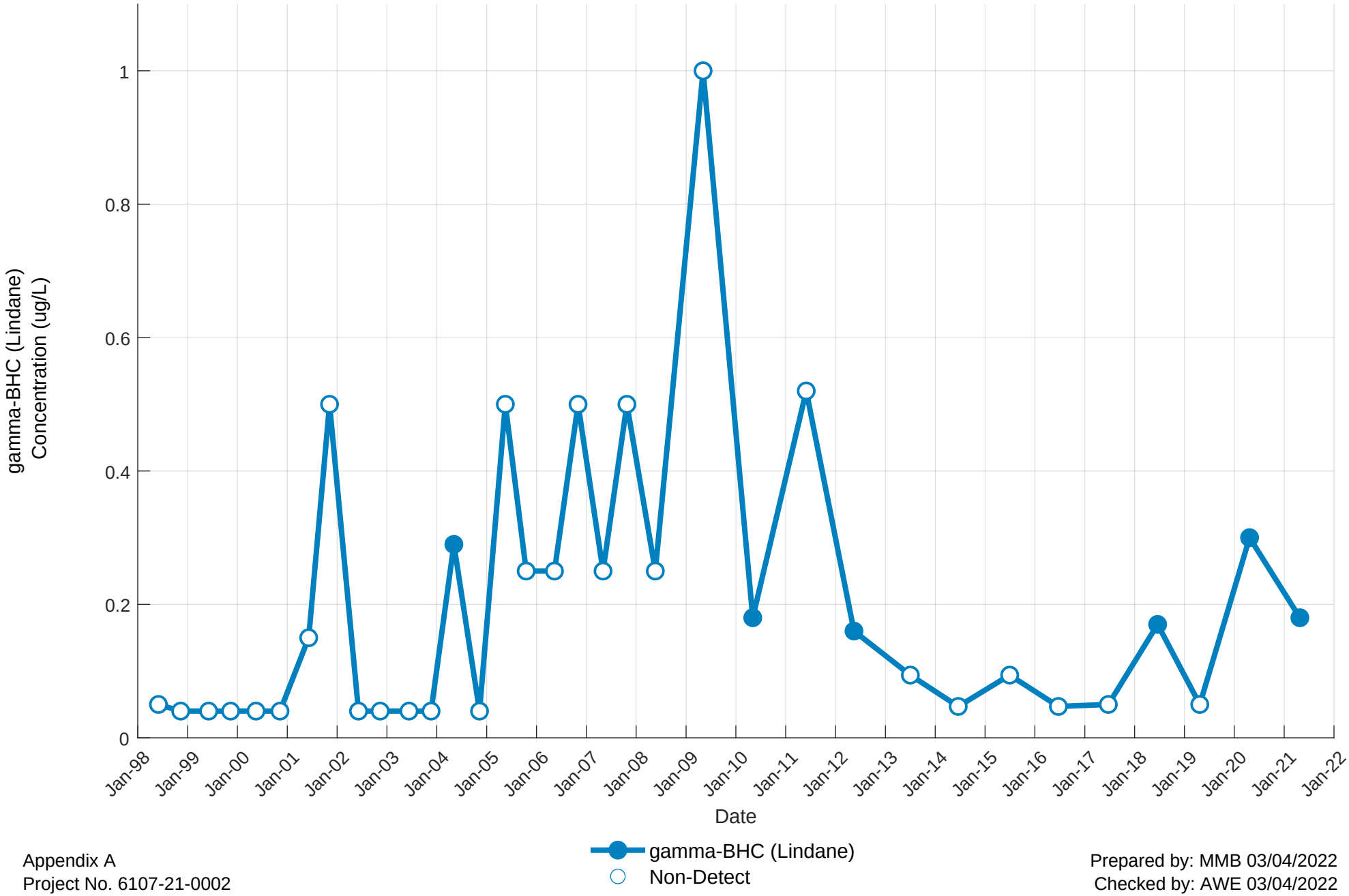


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

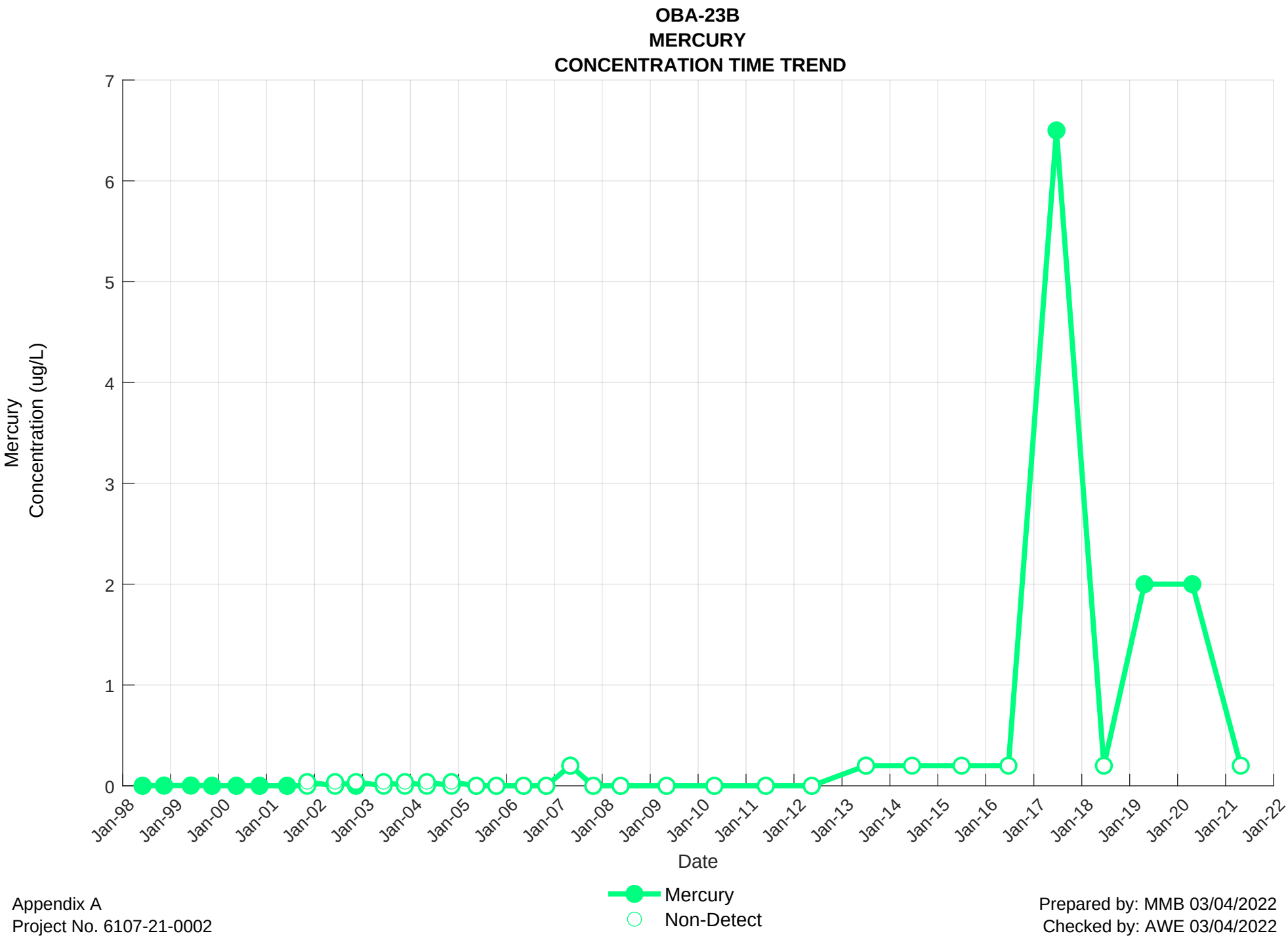


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-23B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

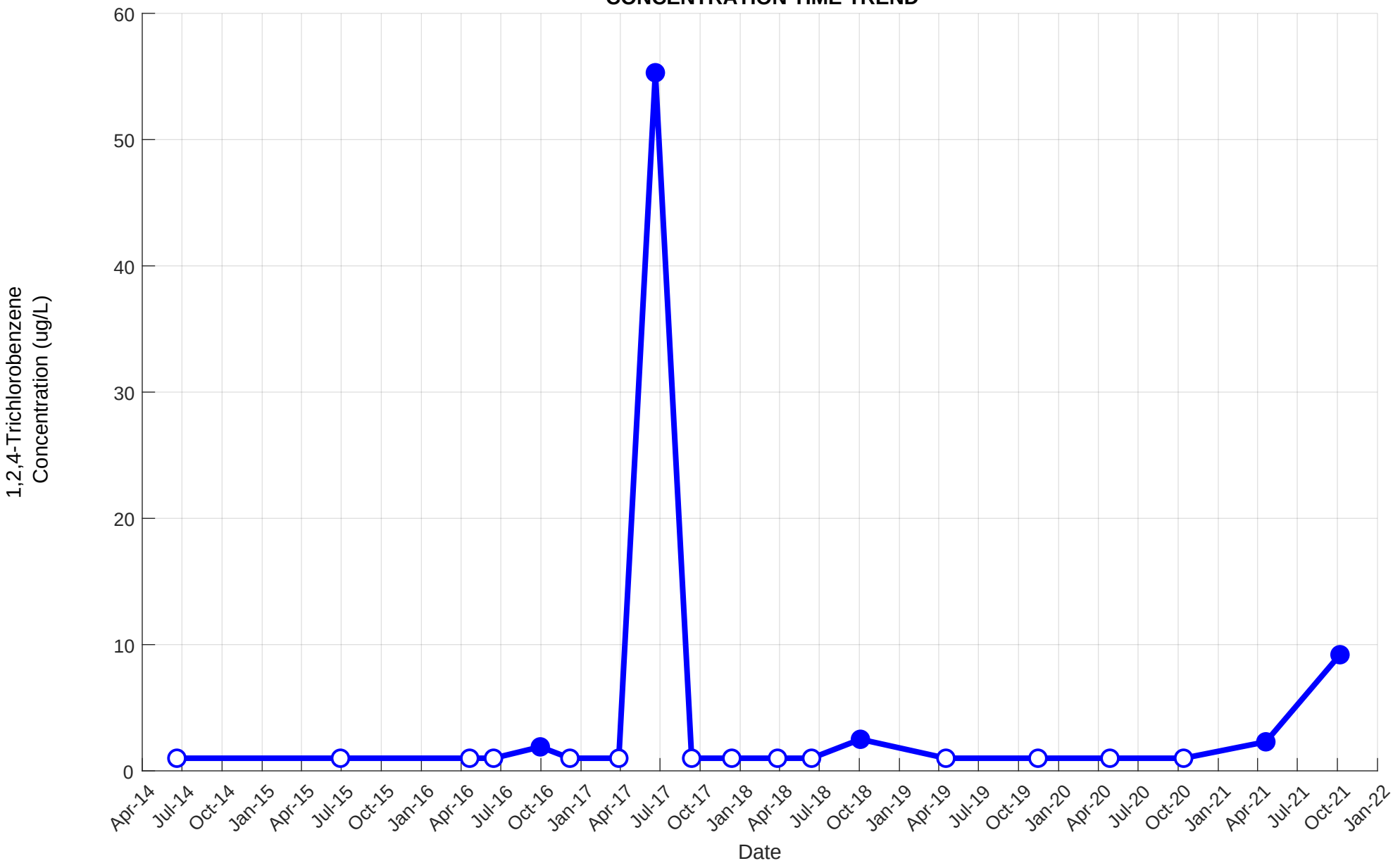


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

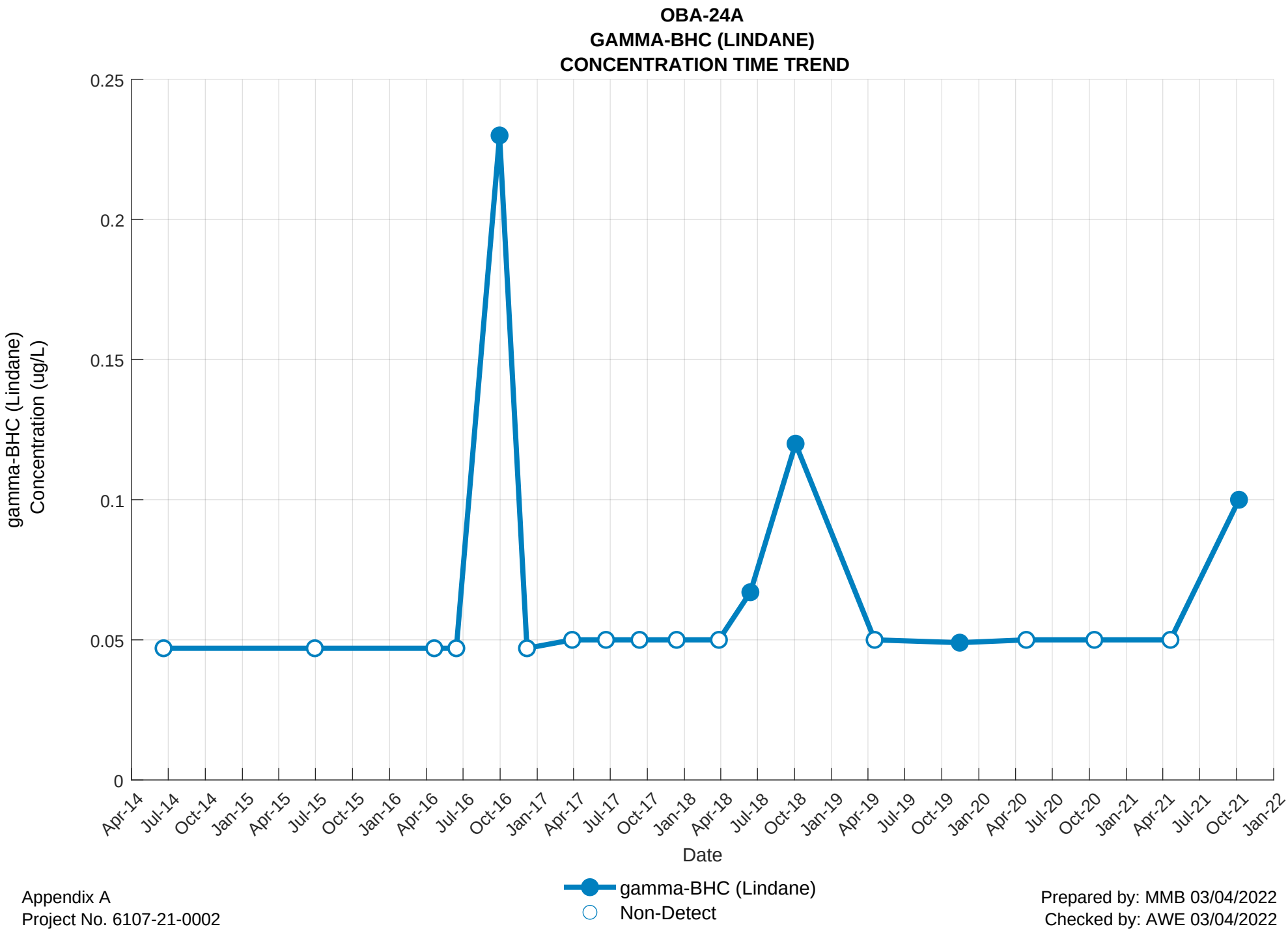


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

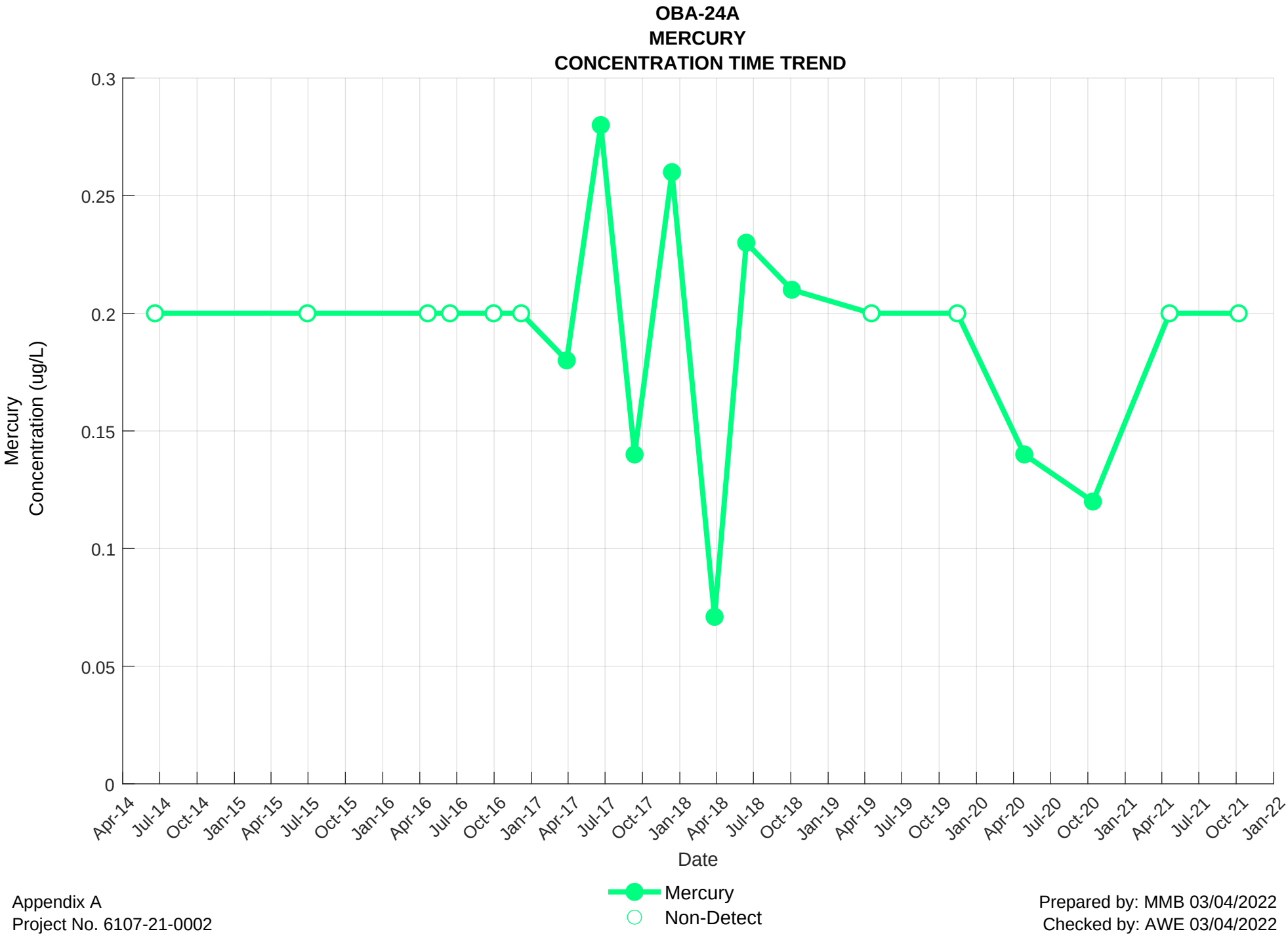
OBA-24A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

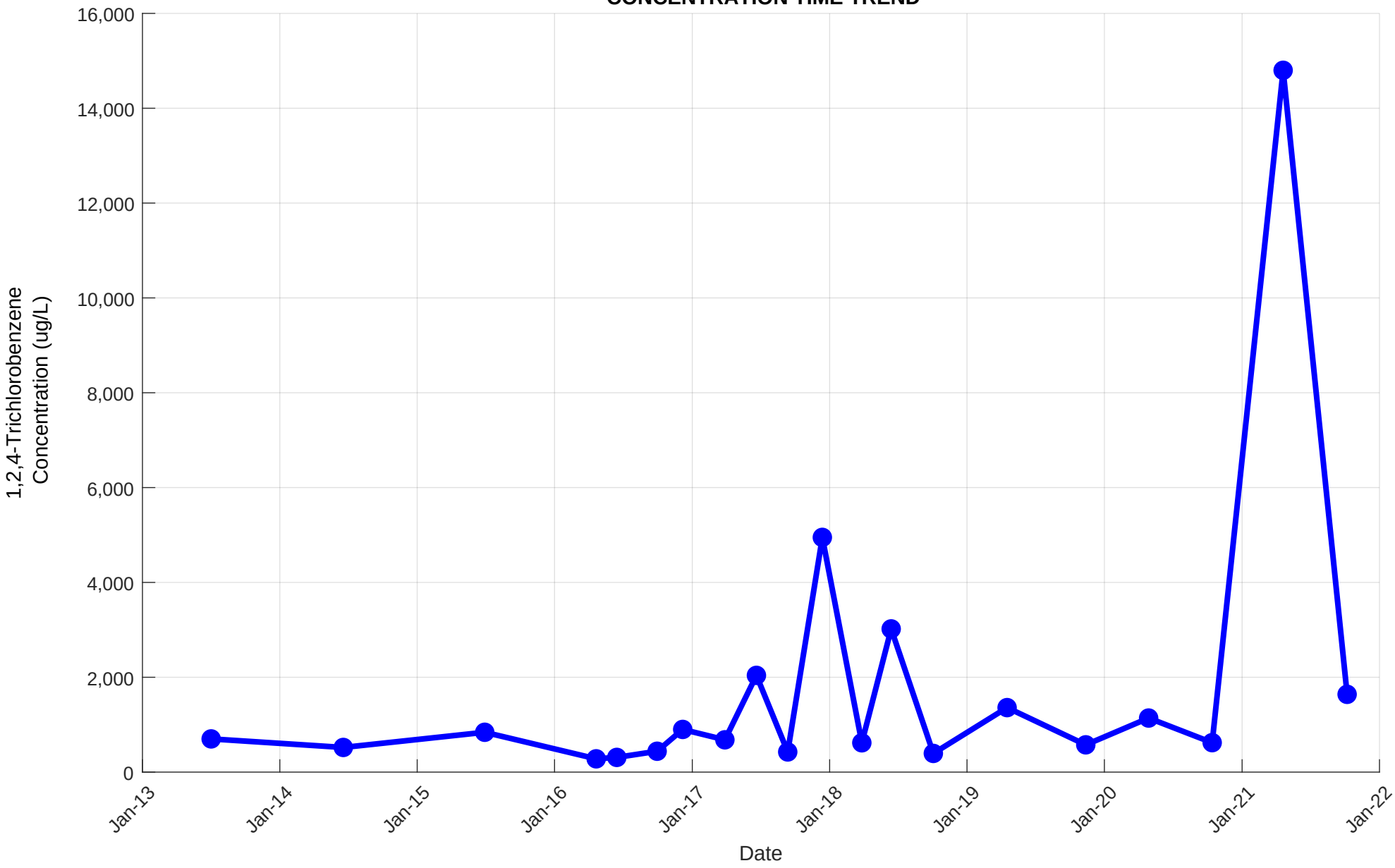


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



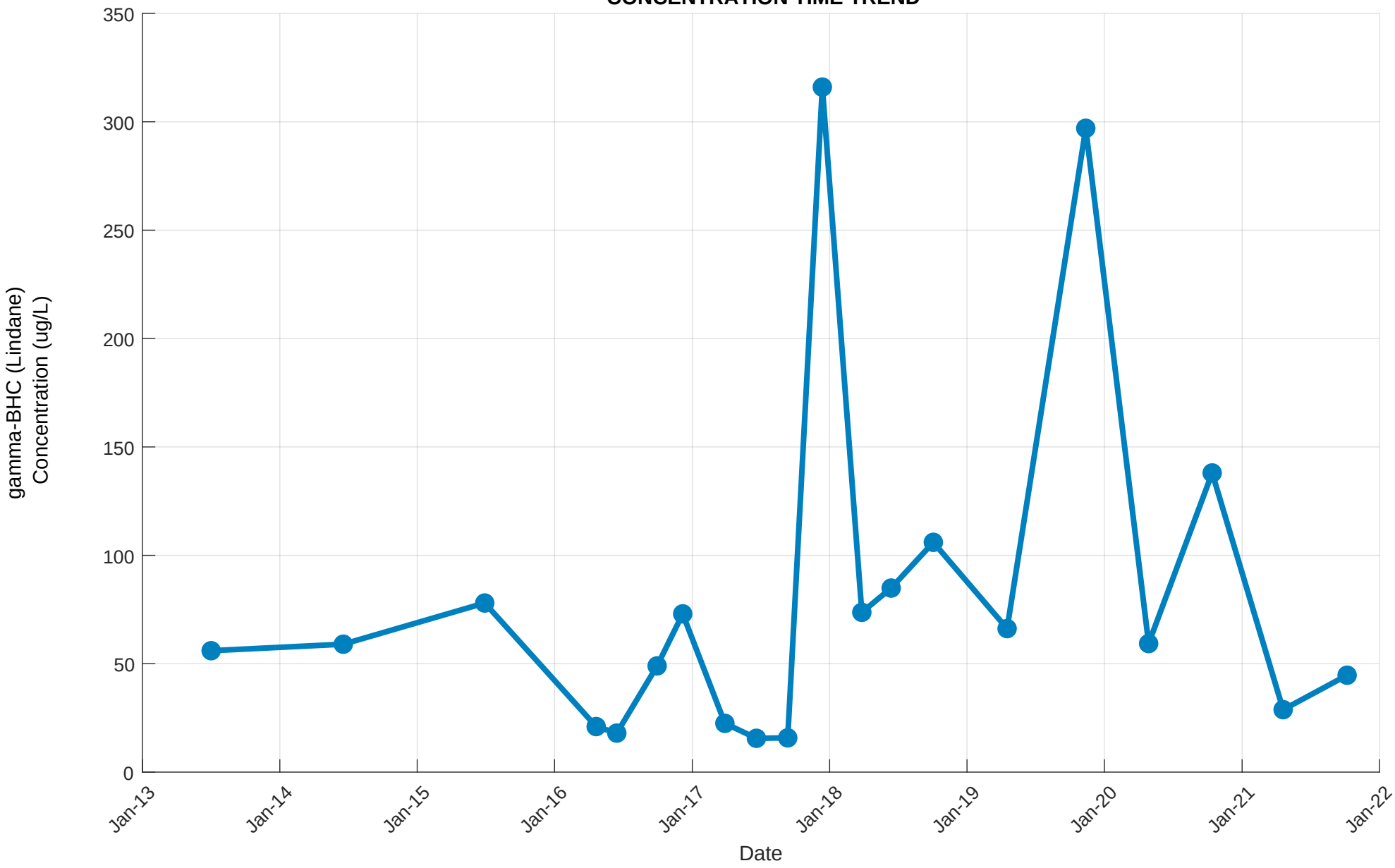
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-24B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

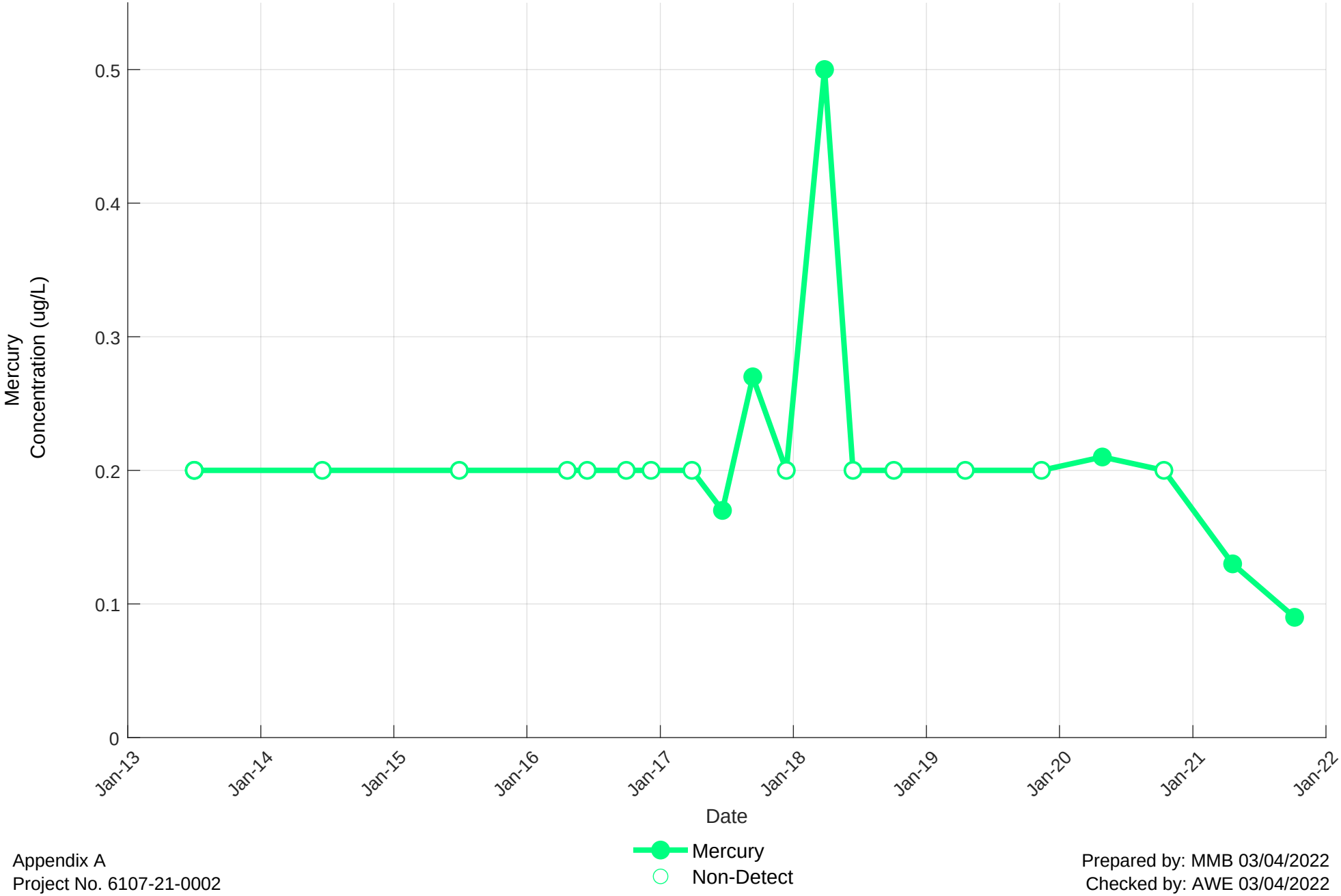


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-24B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

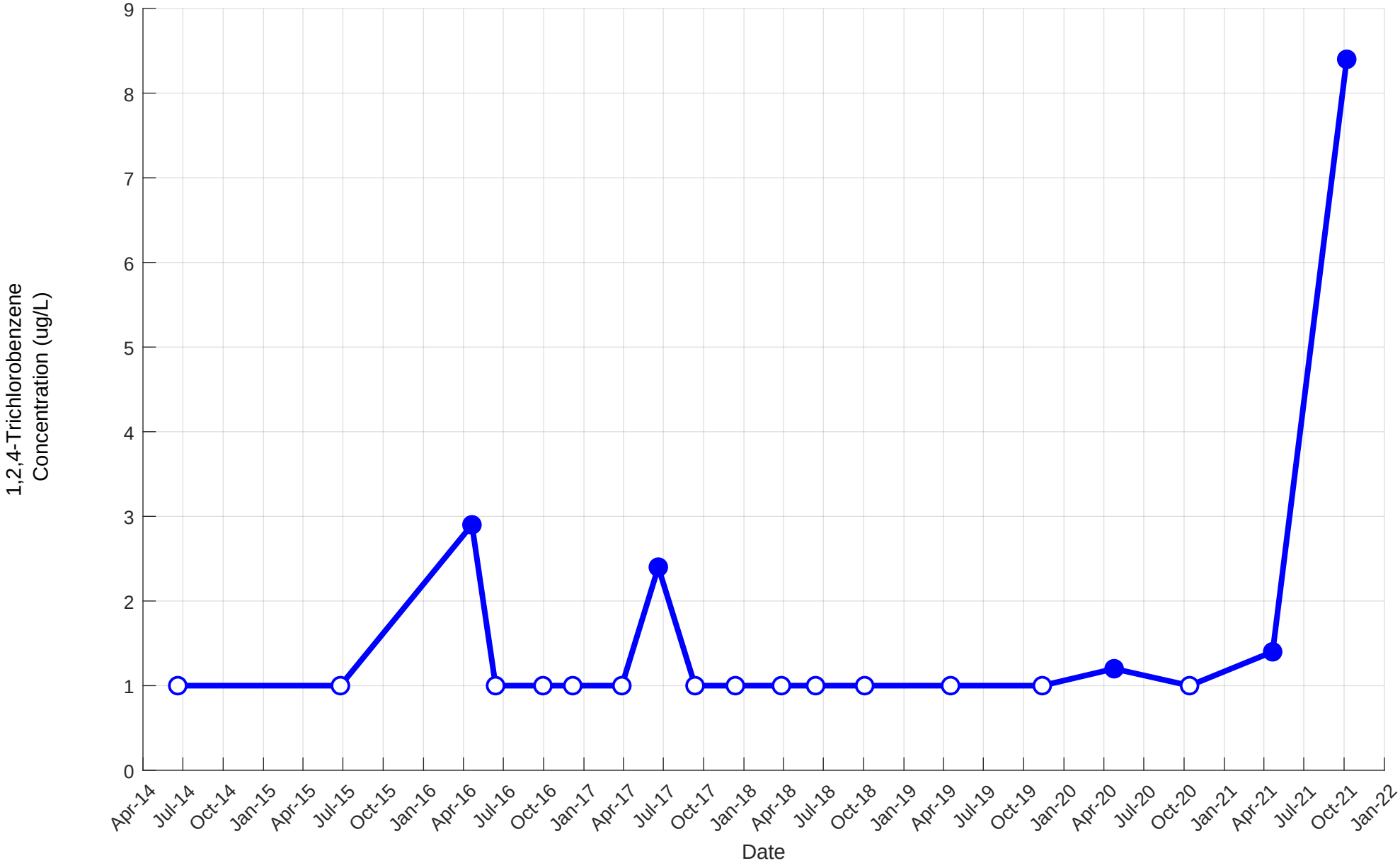


OBA-24B
MERCURY
CONCENTRATION TIME TREND



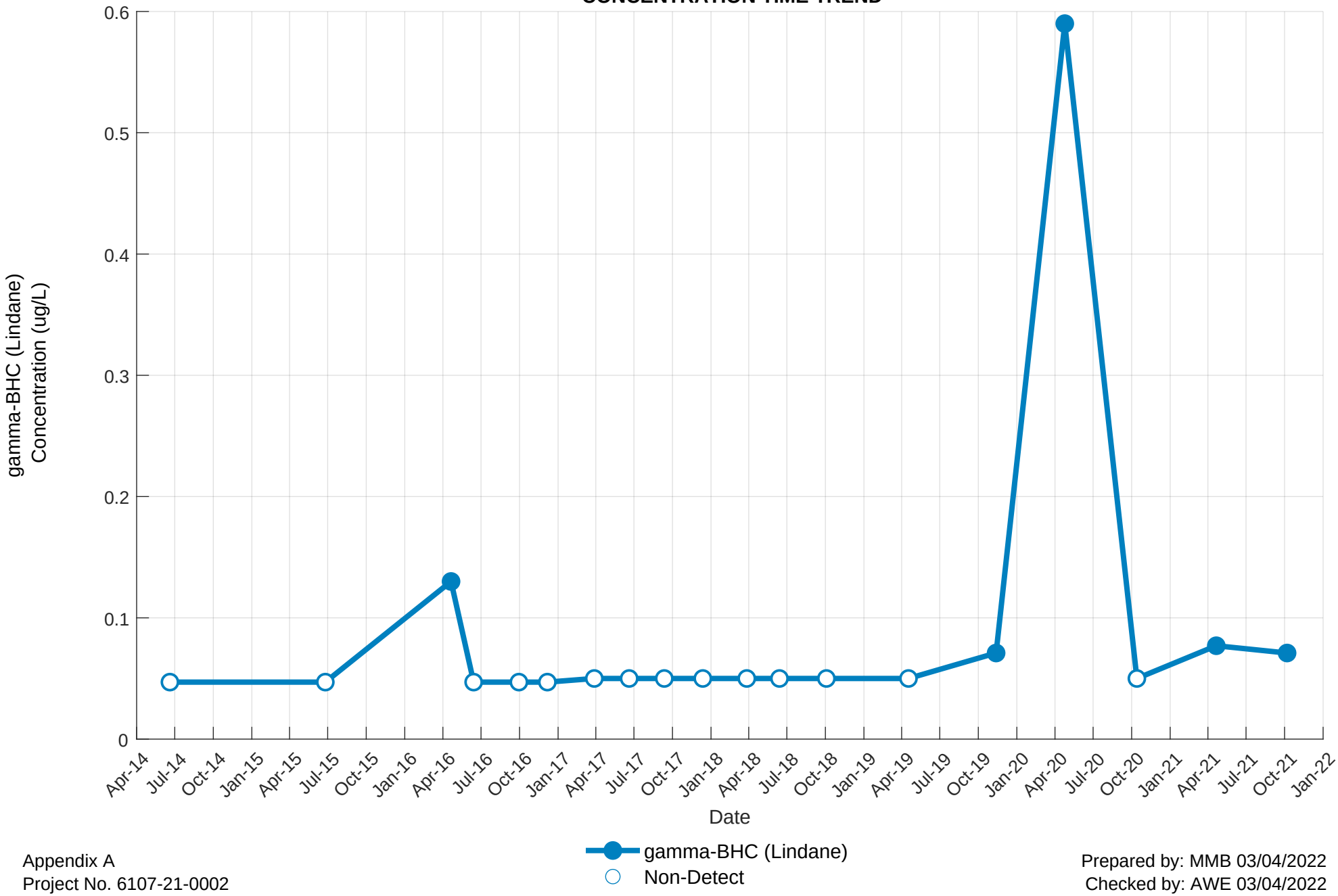
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-25A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

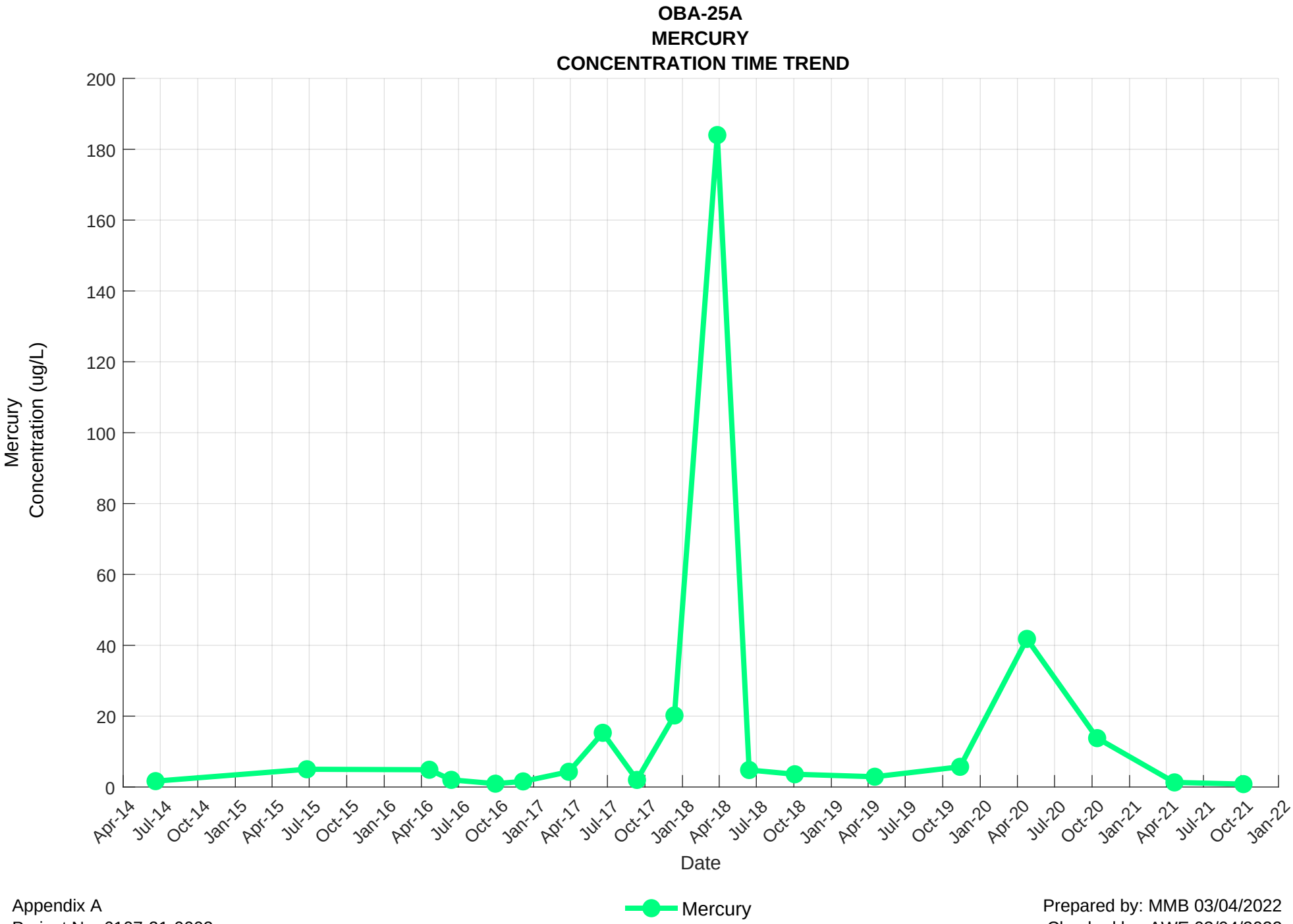


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-25A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

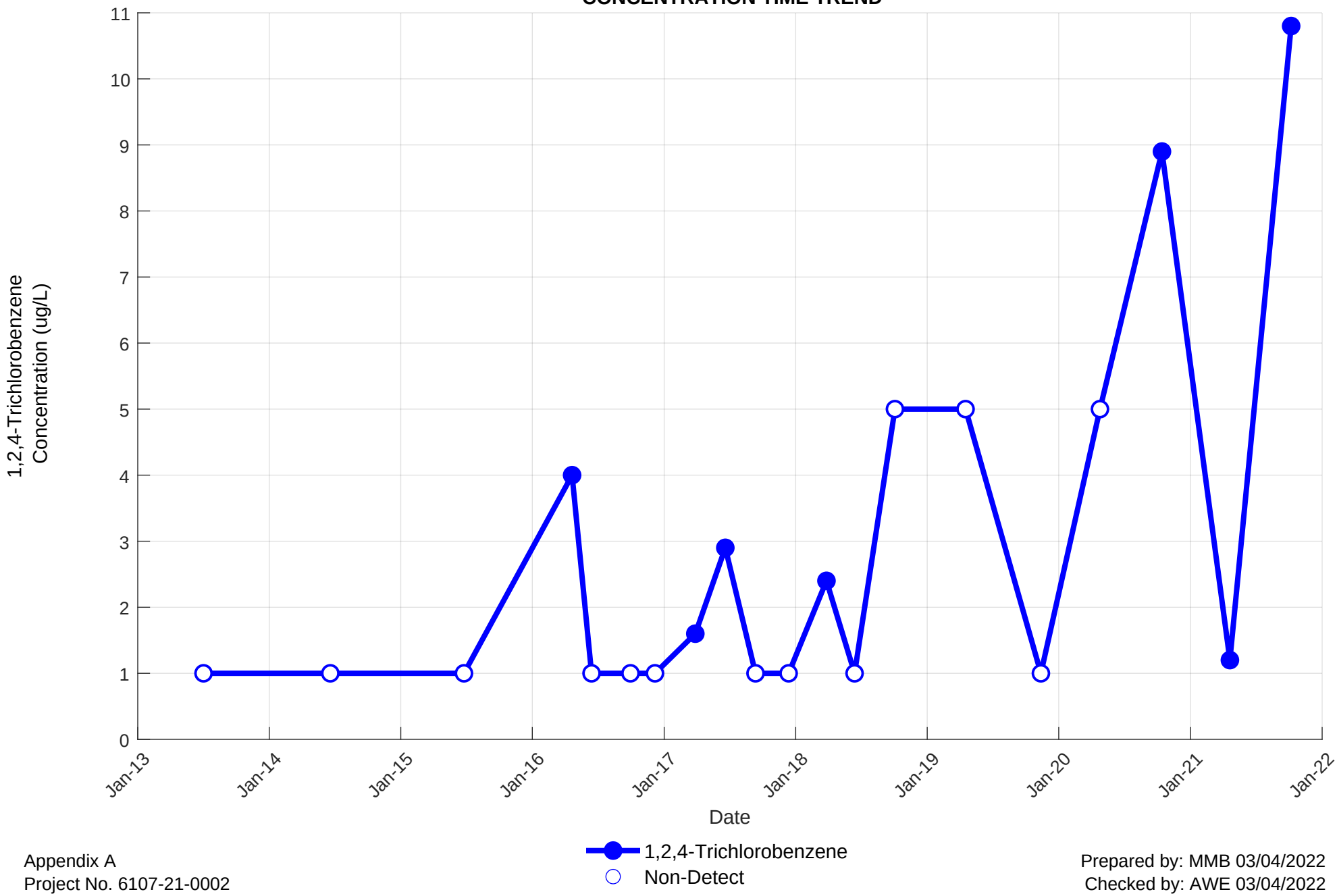


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



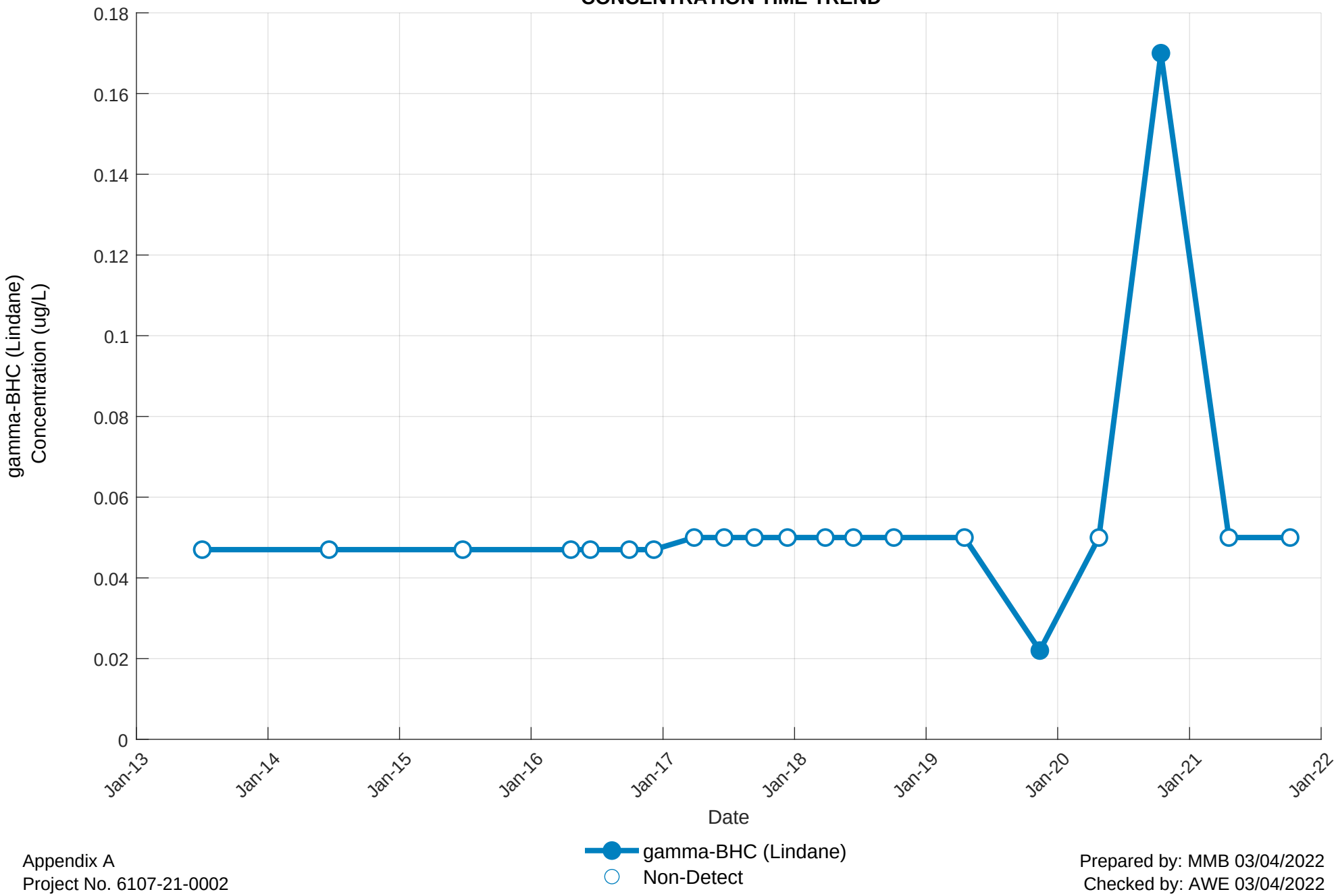
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-25B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



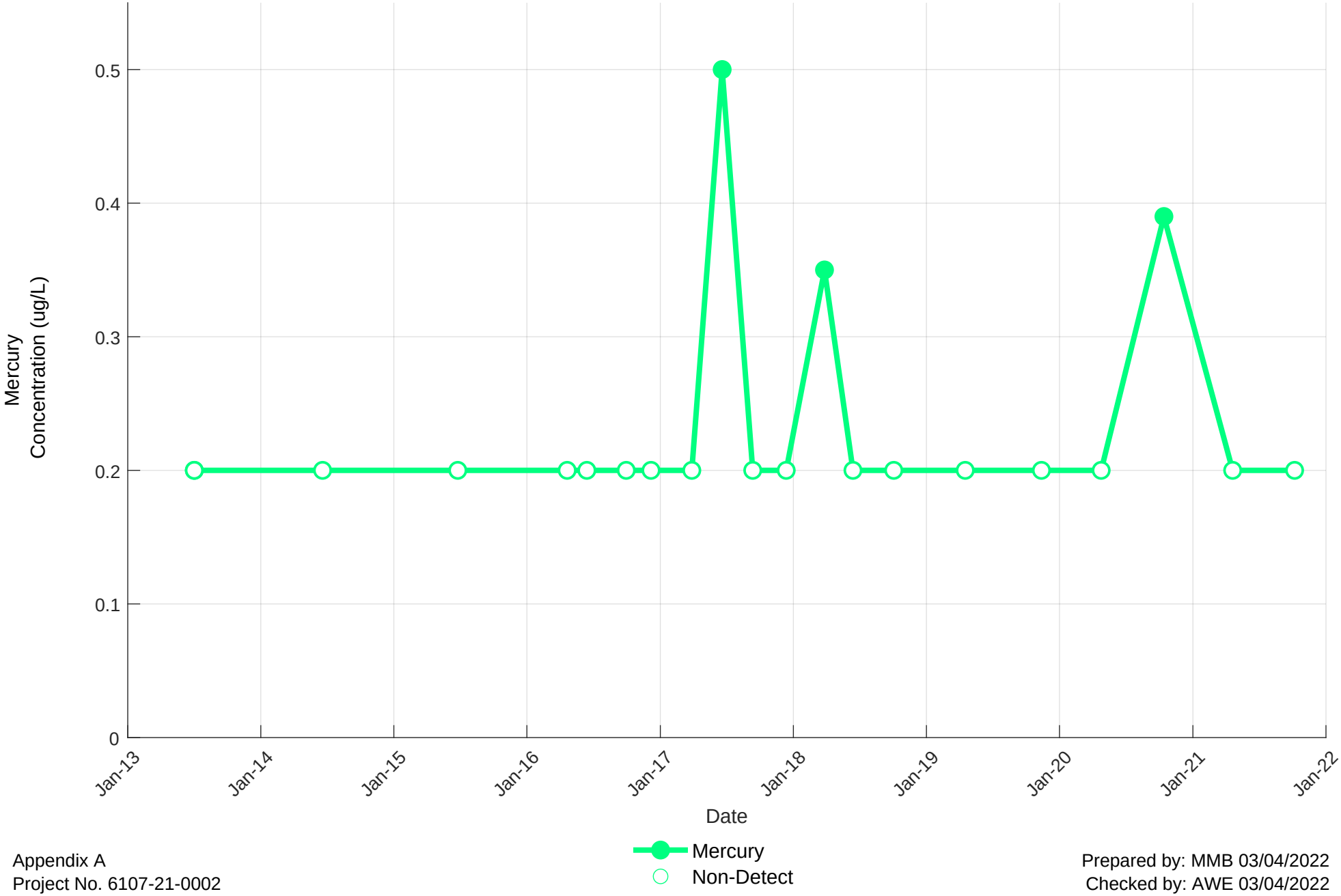
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-25B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



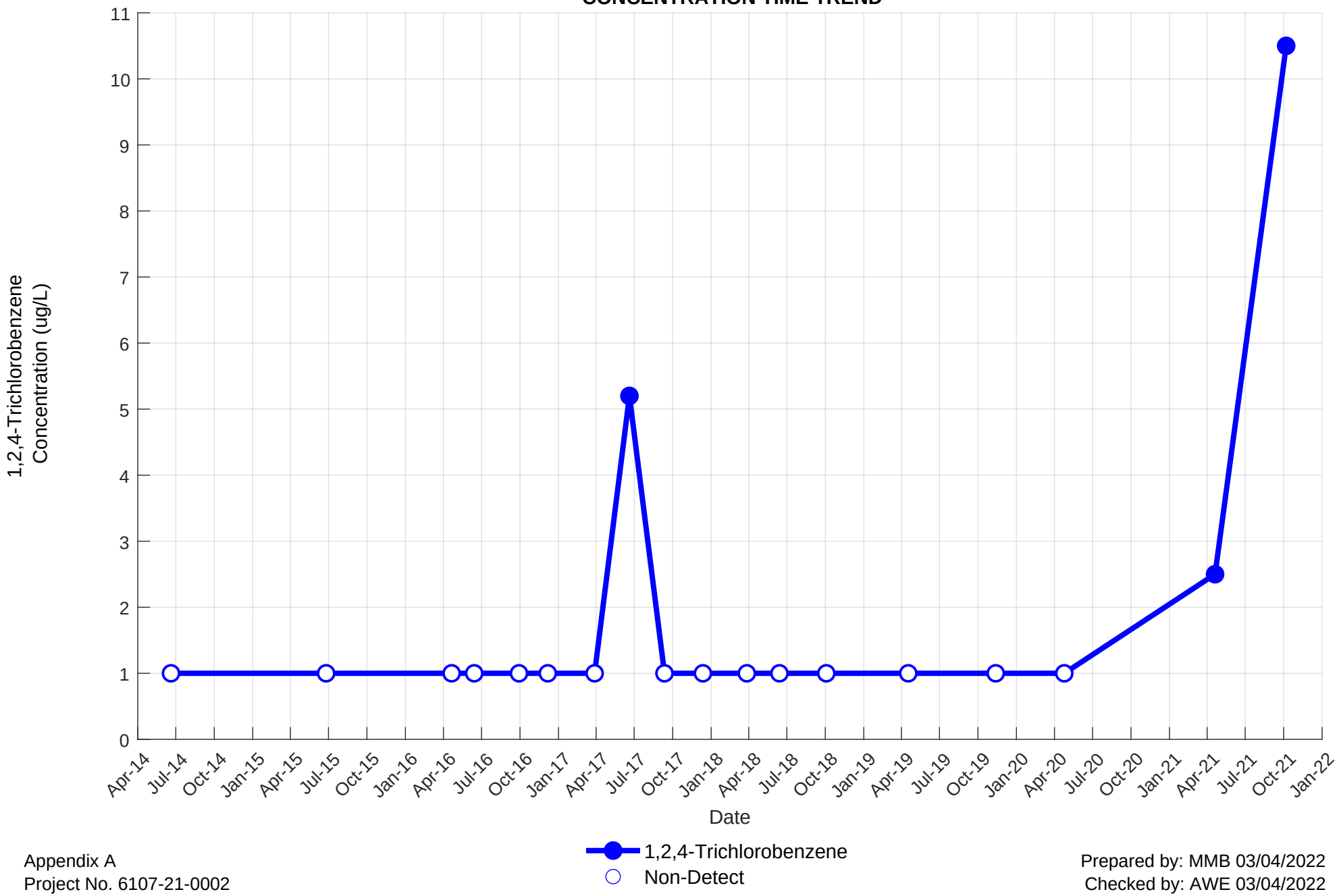
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-25B
MERCURY
CONCENTRATION TIME TREND



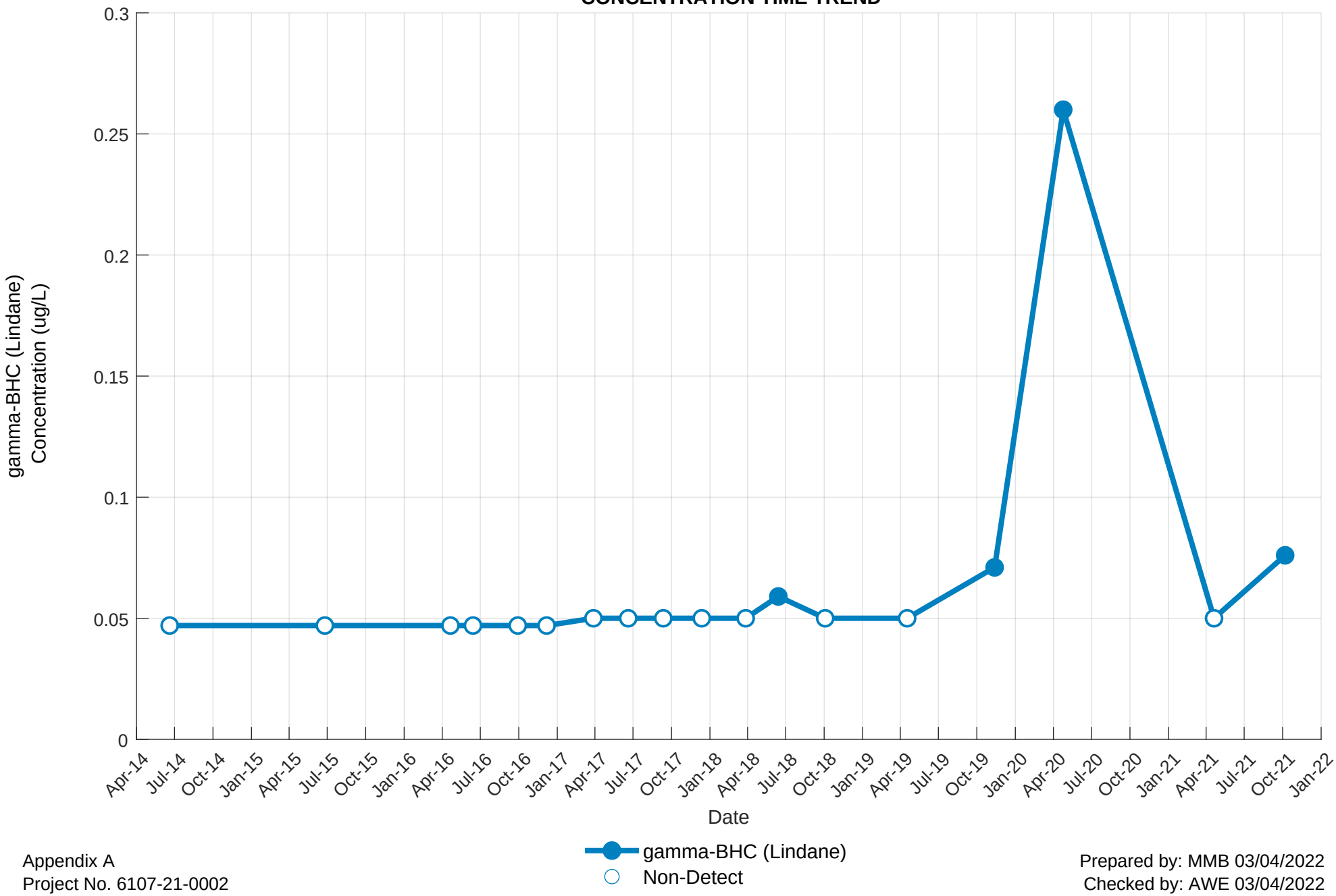
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



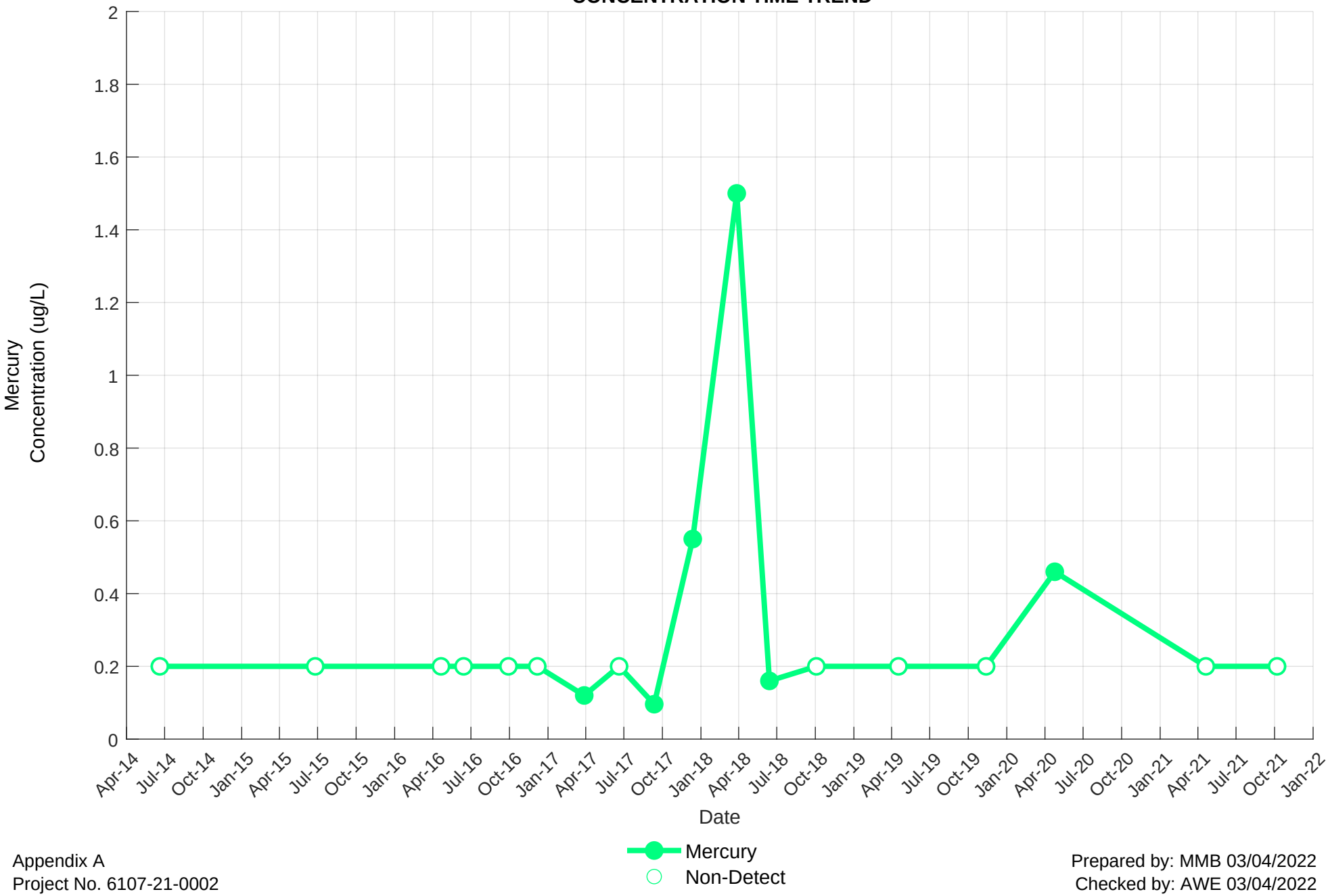
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



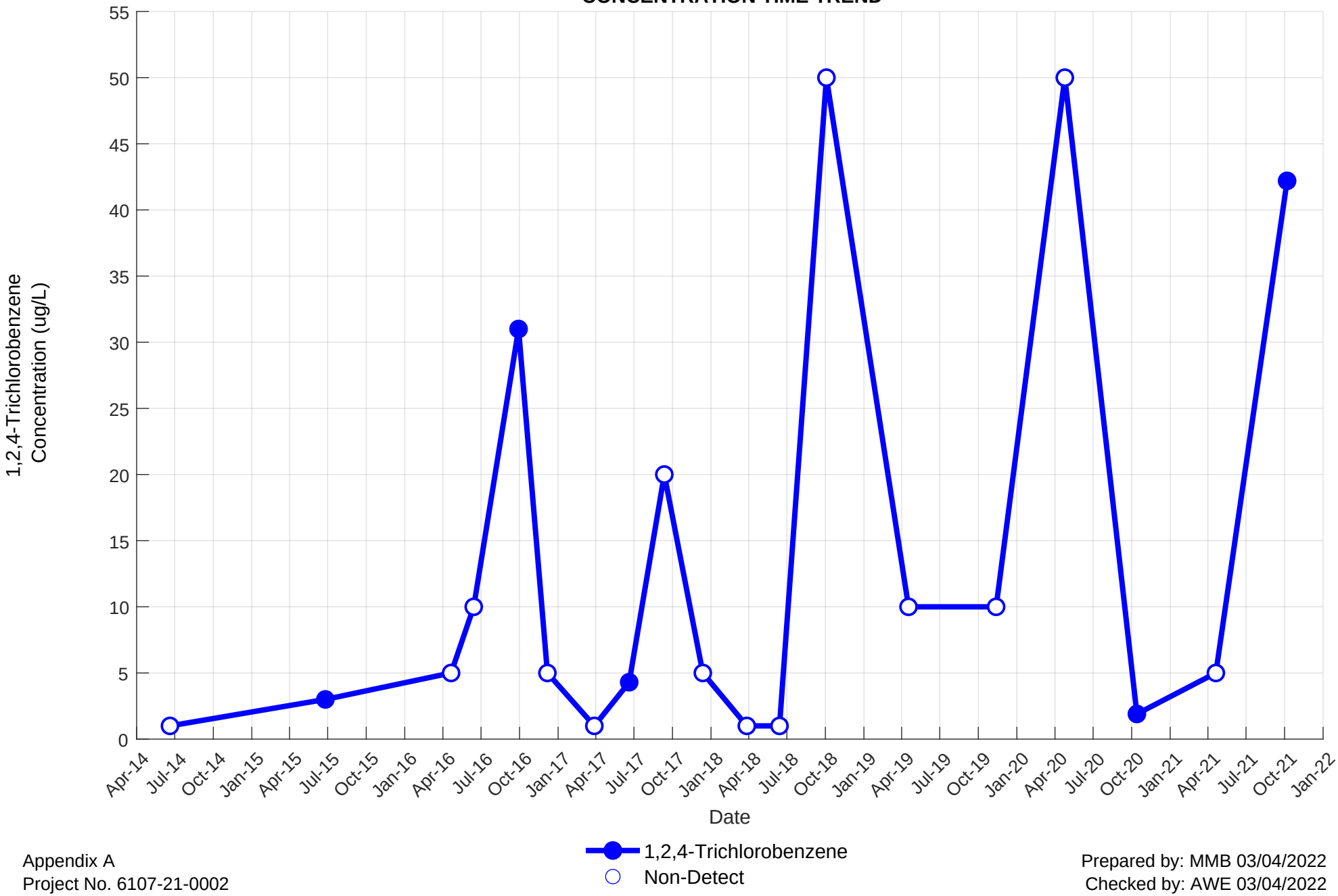
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26A
MERCURY
CONCENTRATION TIME TREND



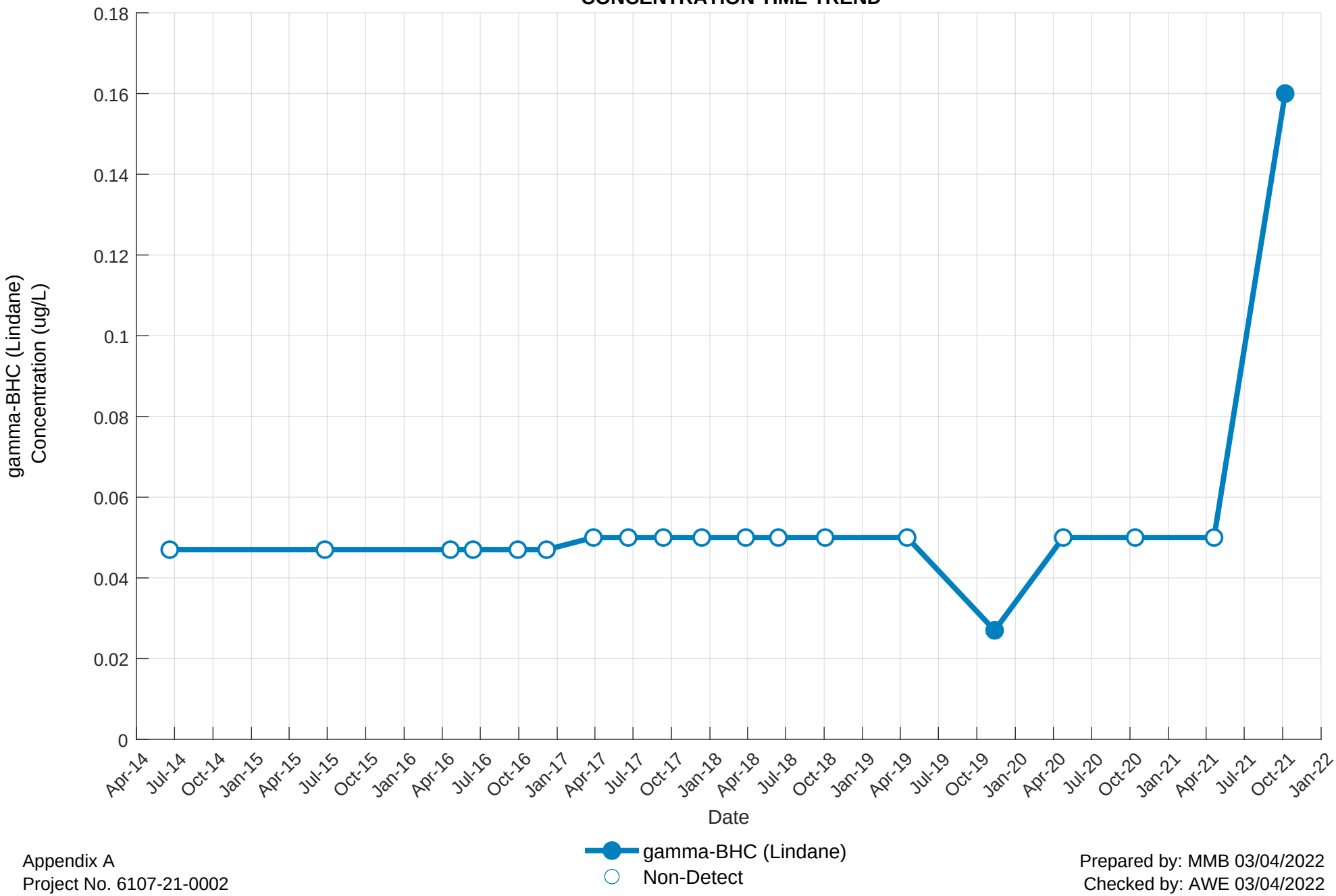
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



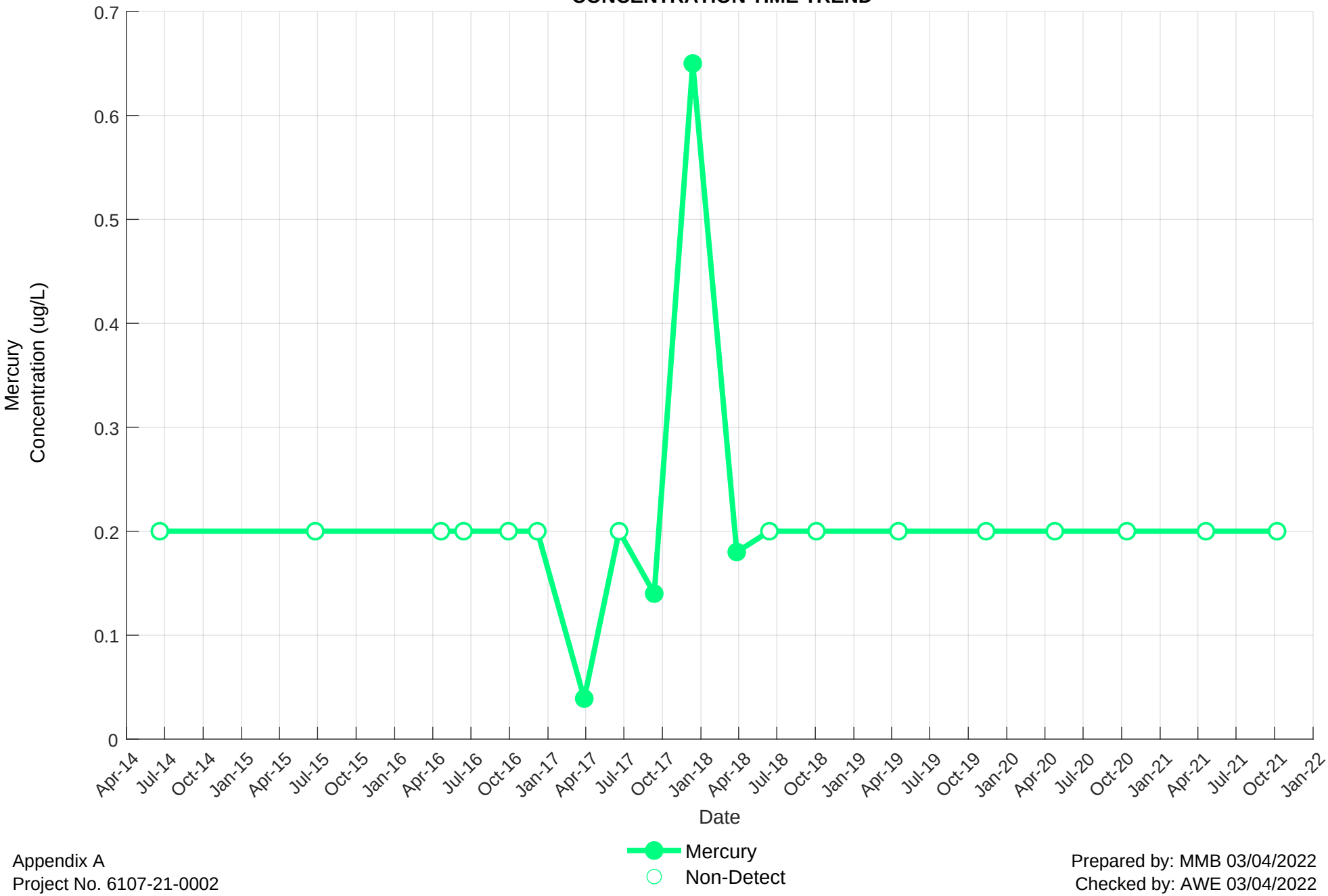
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



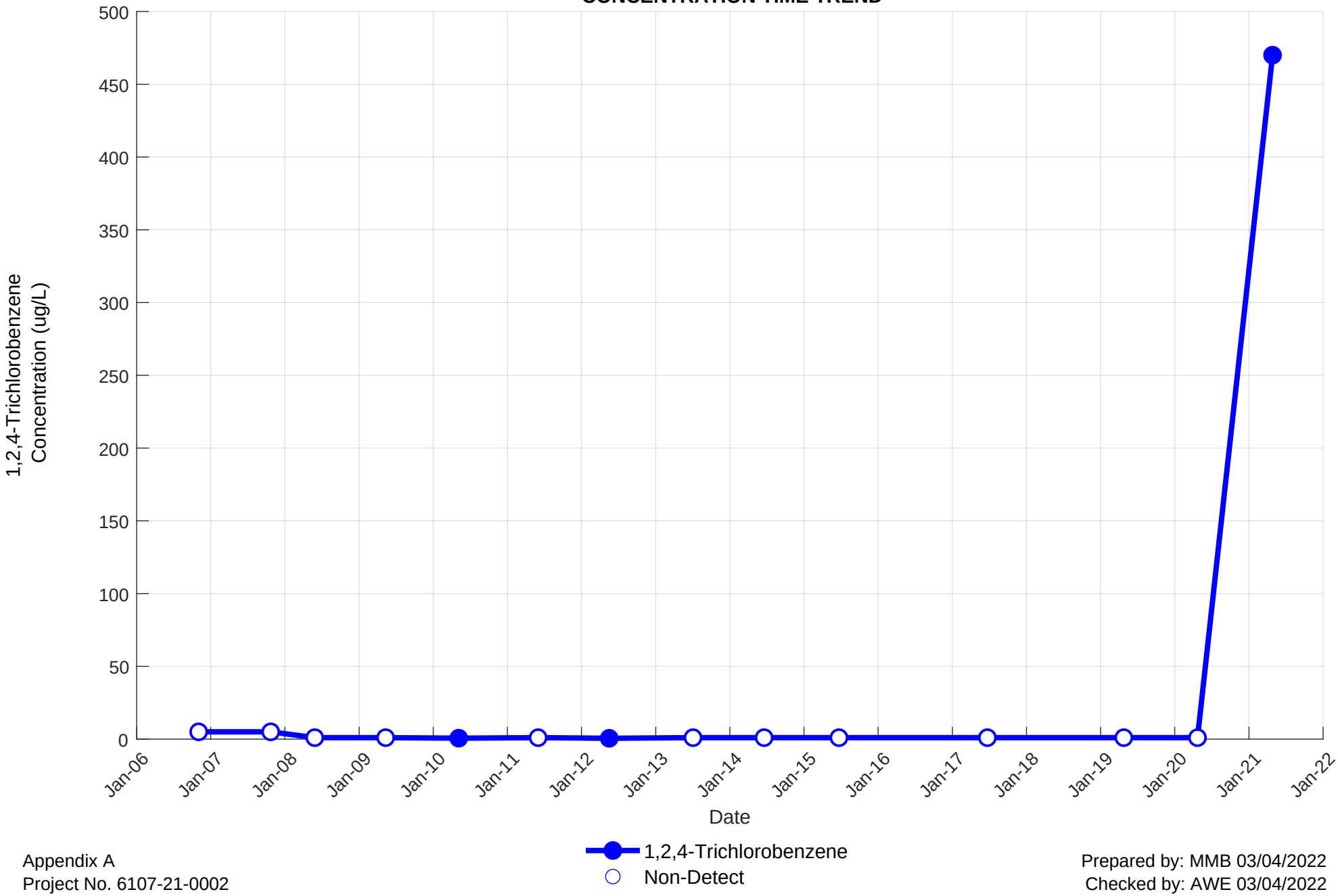
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

OBA-26B
MERCURY
CONCENTRATION TIME TREND



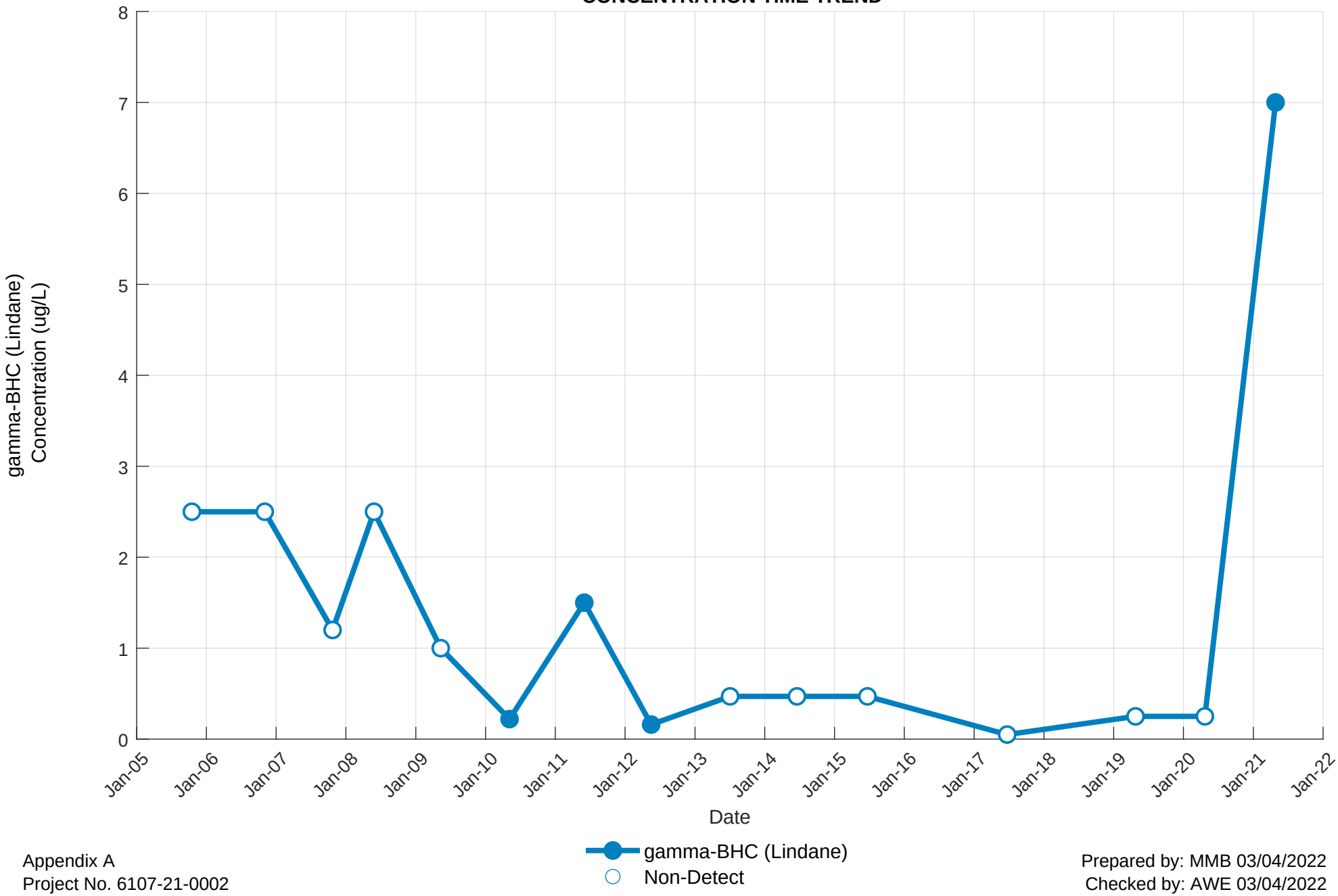
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-3A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

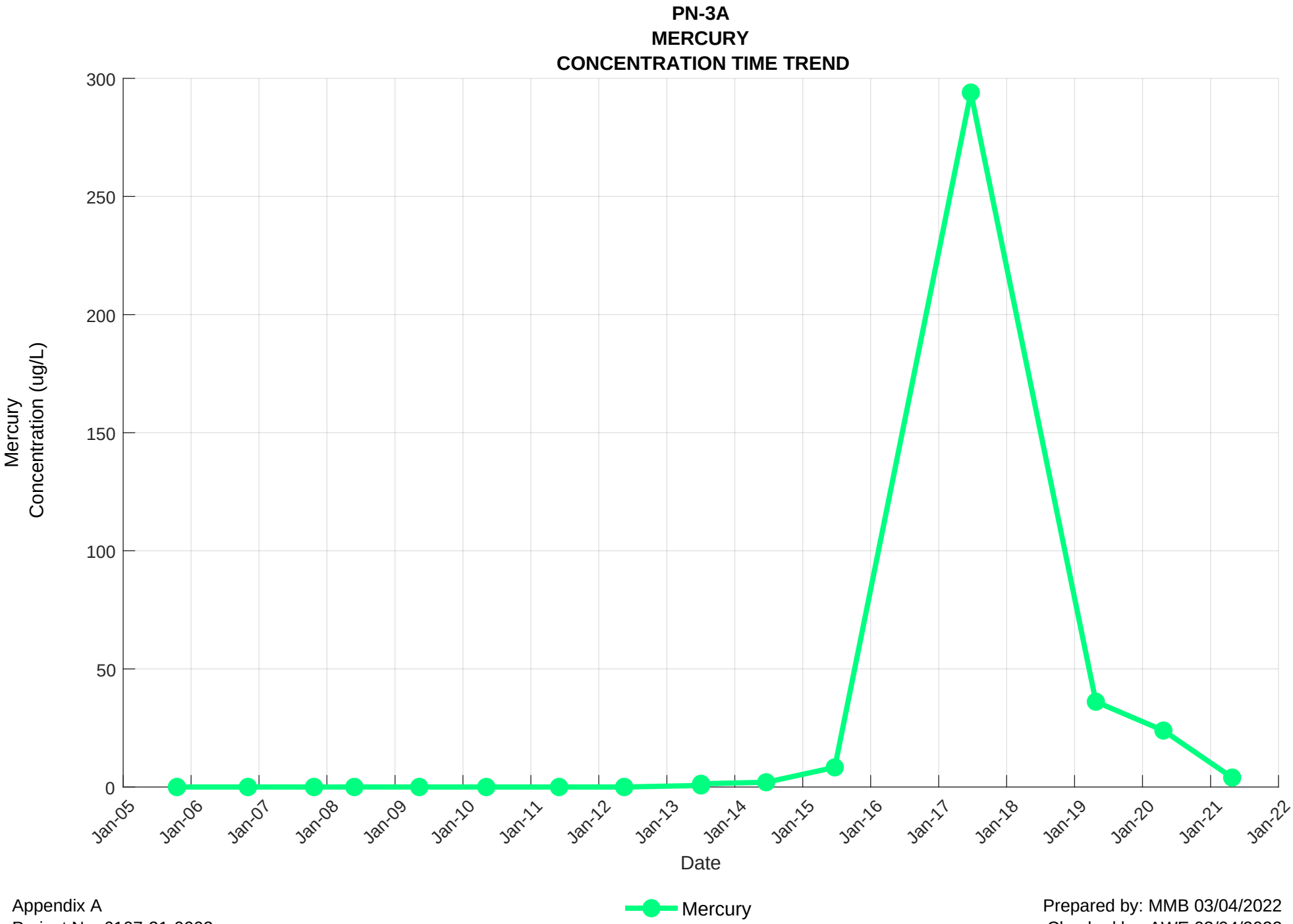


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

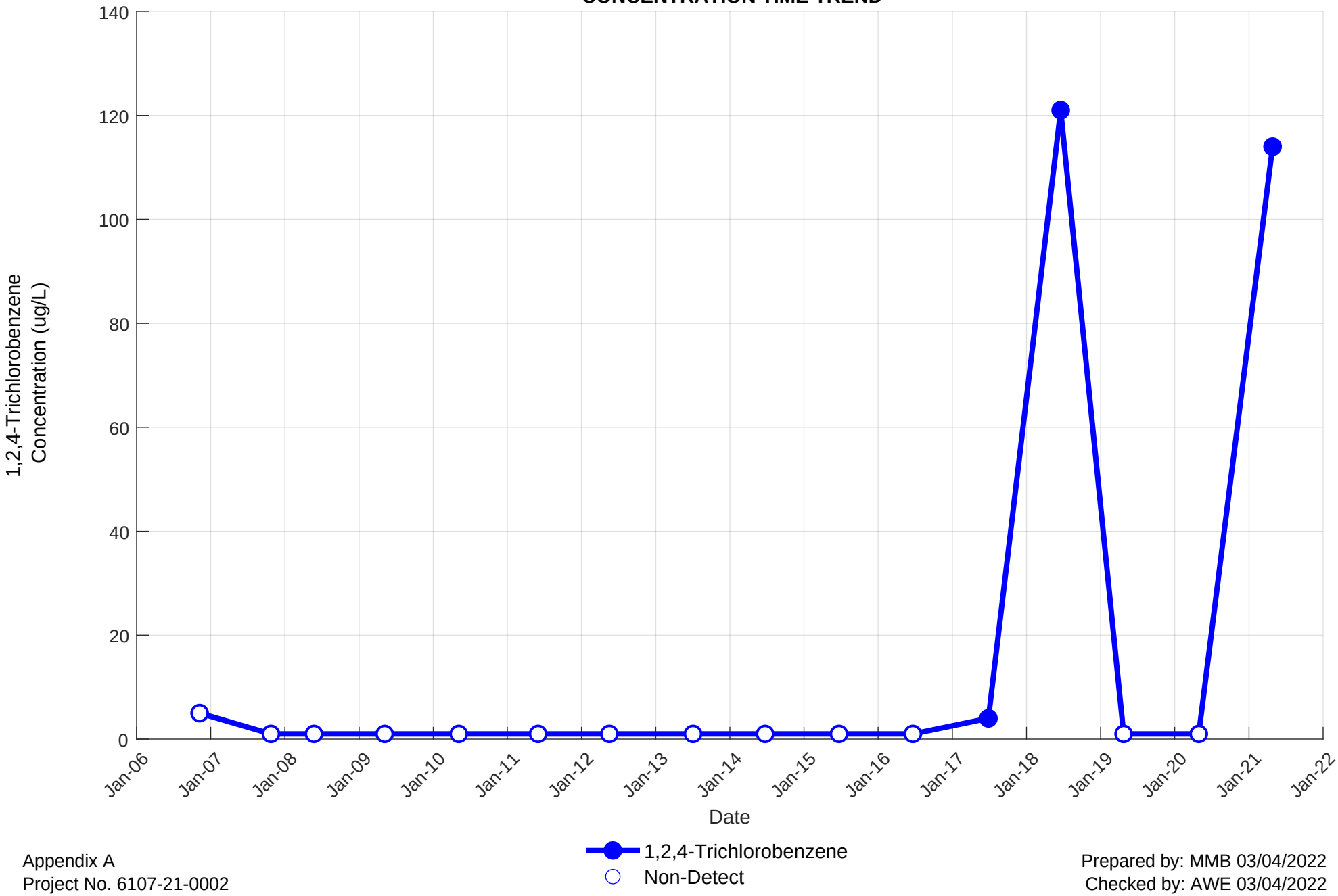
PN-3A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

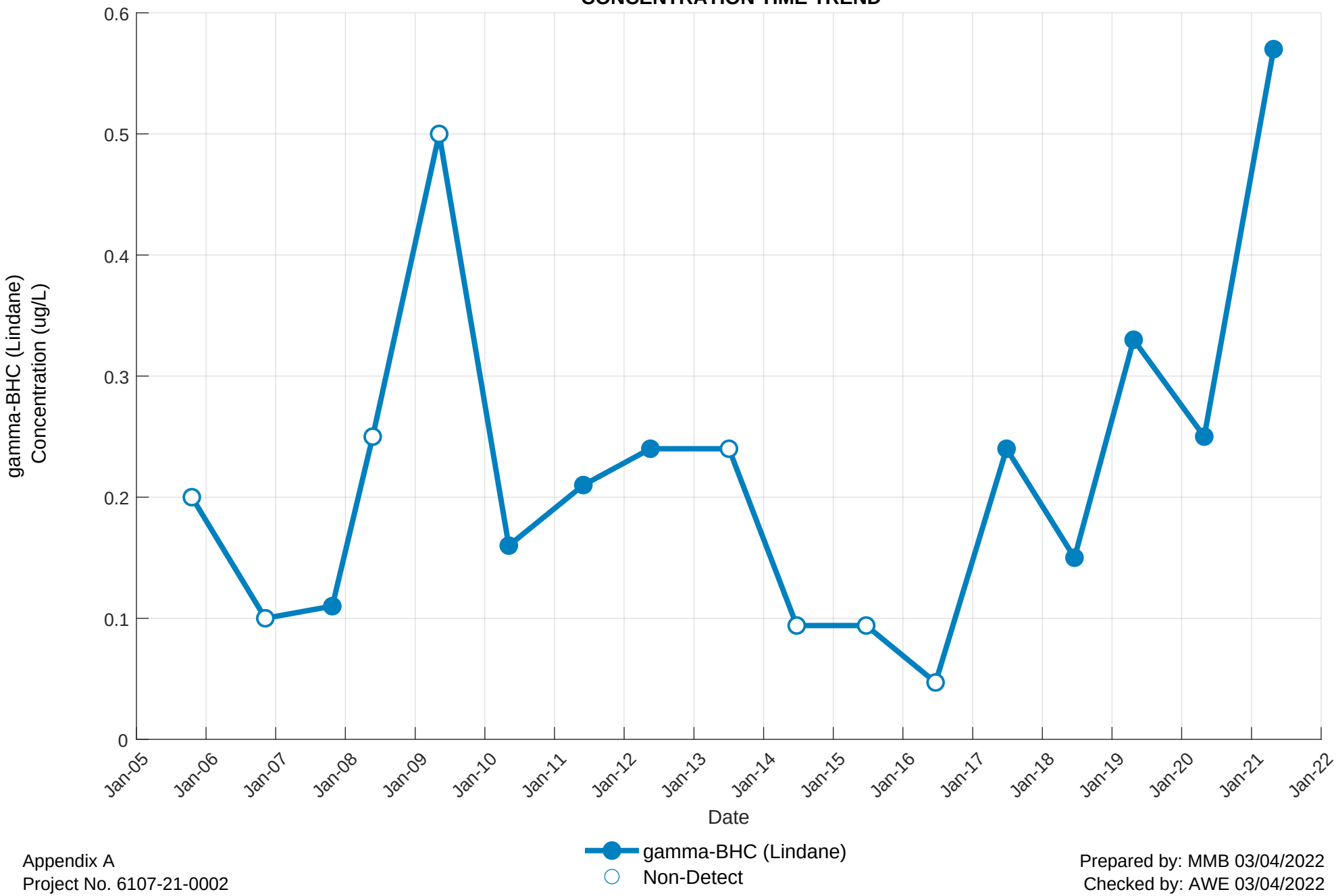

PN-3A
MERCURY
CONCENTRATION TIME TREND
Mercury
Concentration (ug/L)
300
250
200
150
100
50
0
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Date
Mercury

PN-5A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



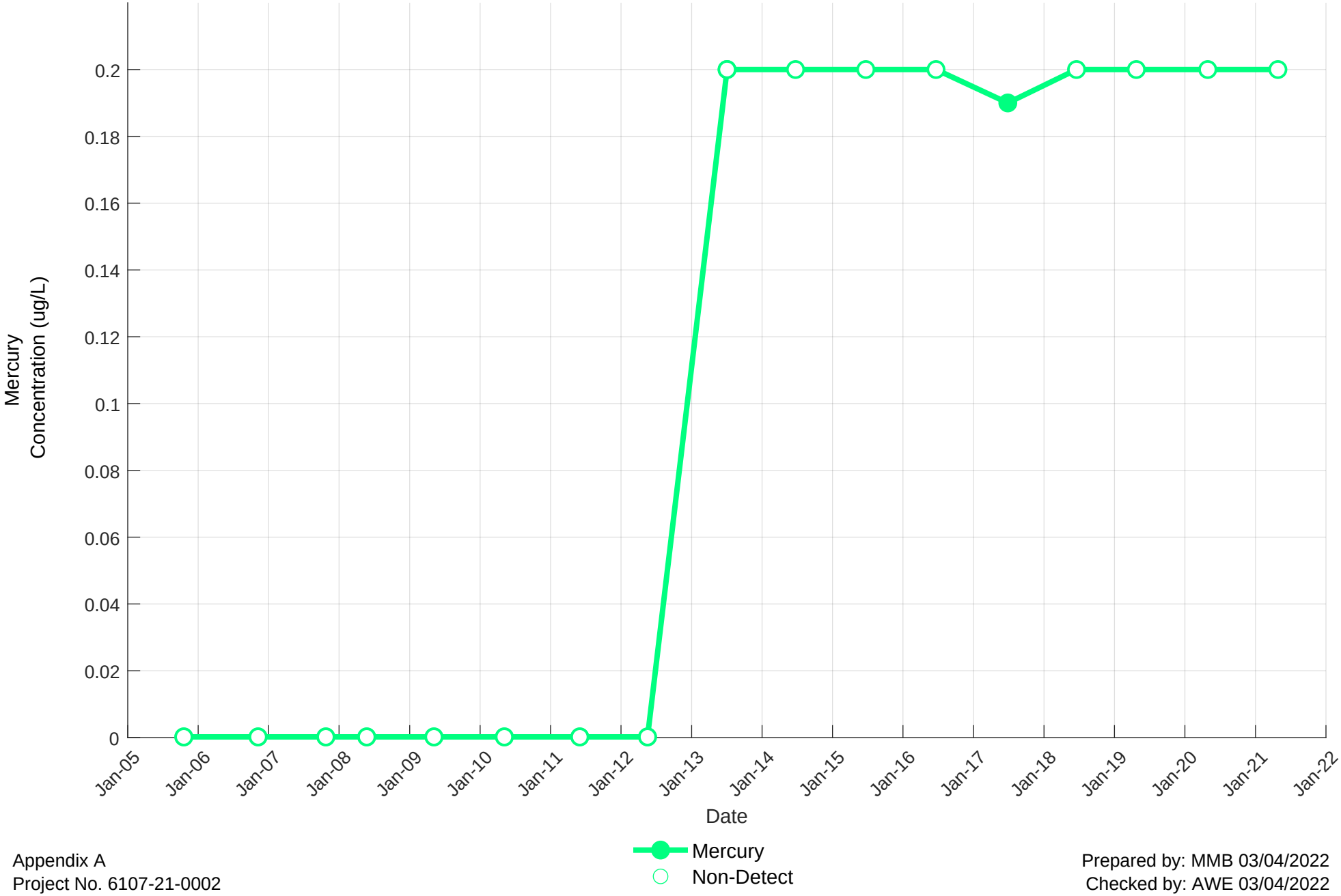
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-5A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

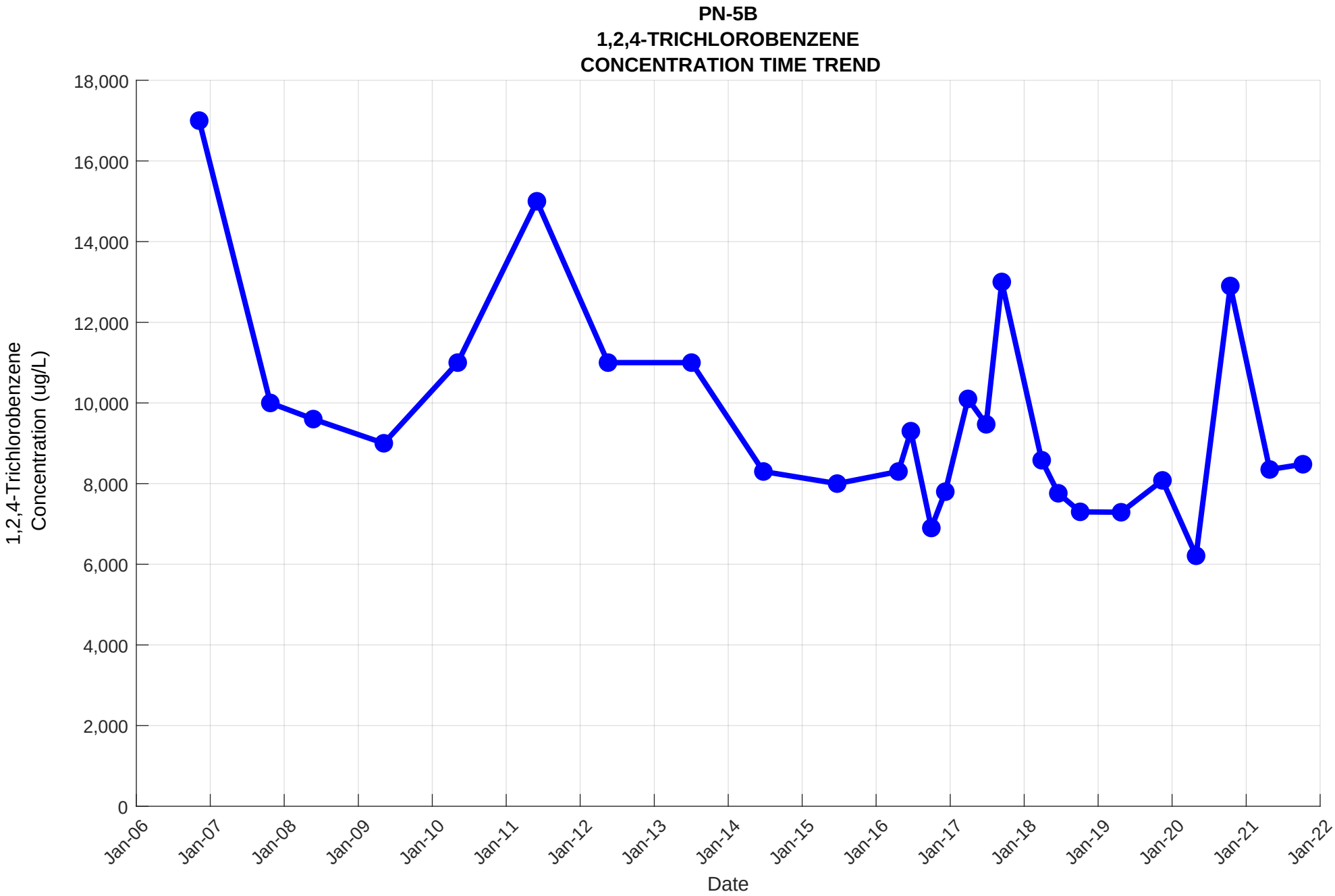


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-5A
MERCURY
CONCENTRATION TIME TREND

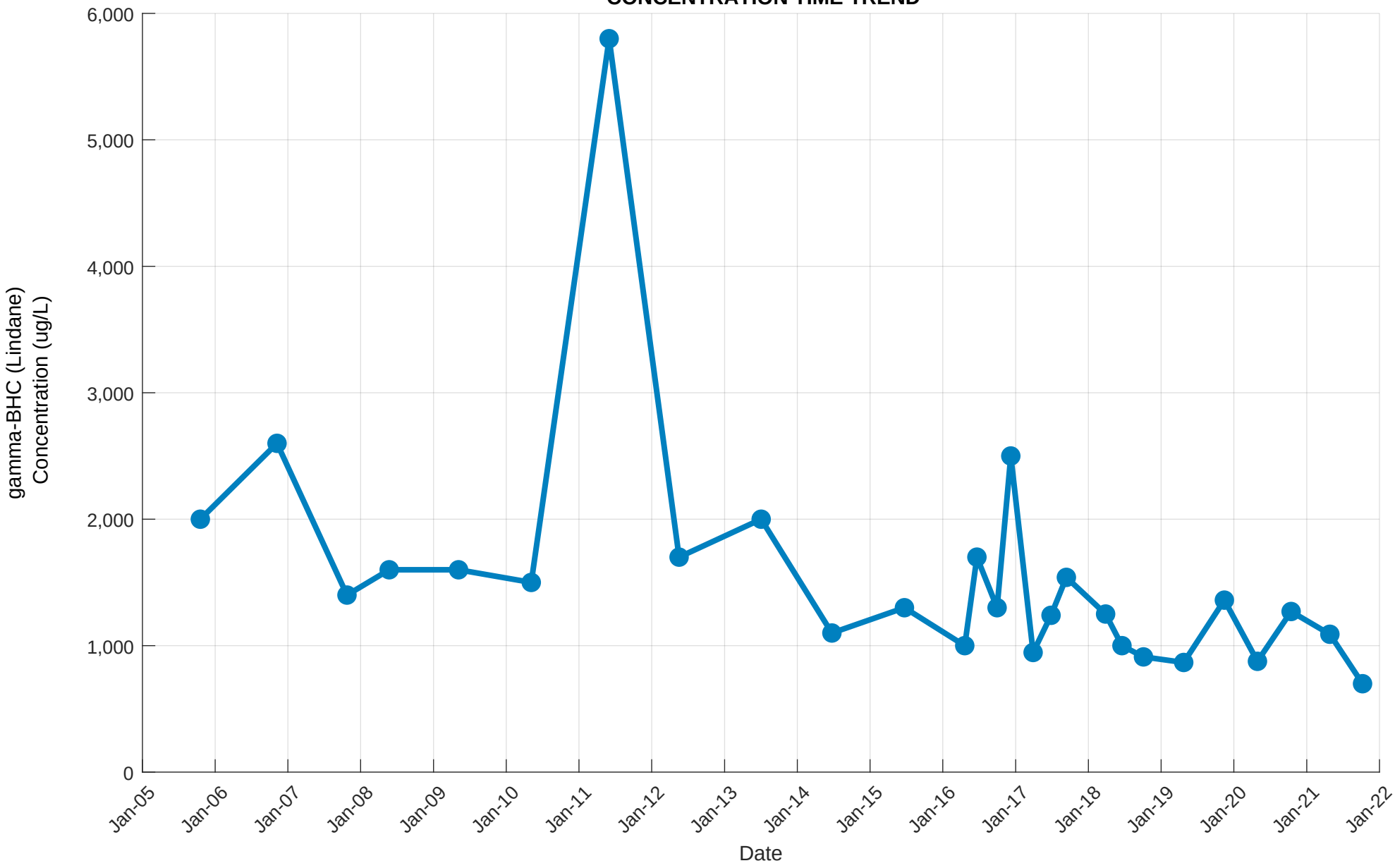


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

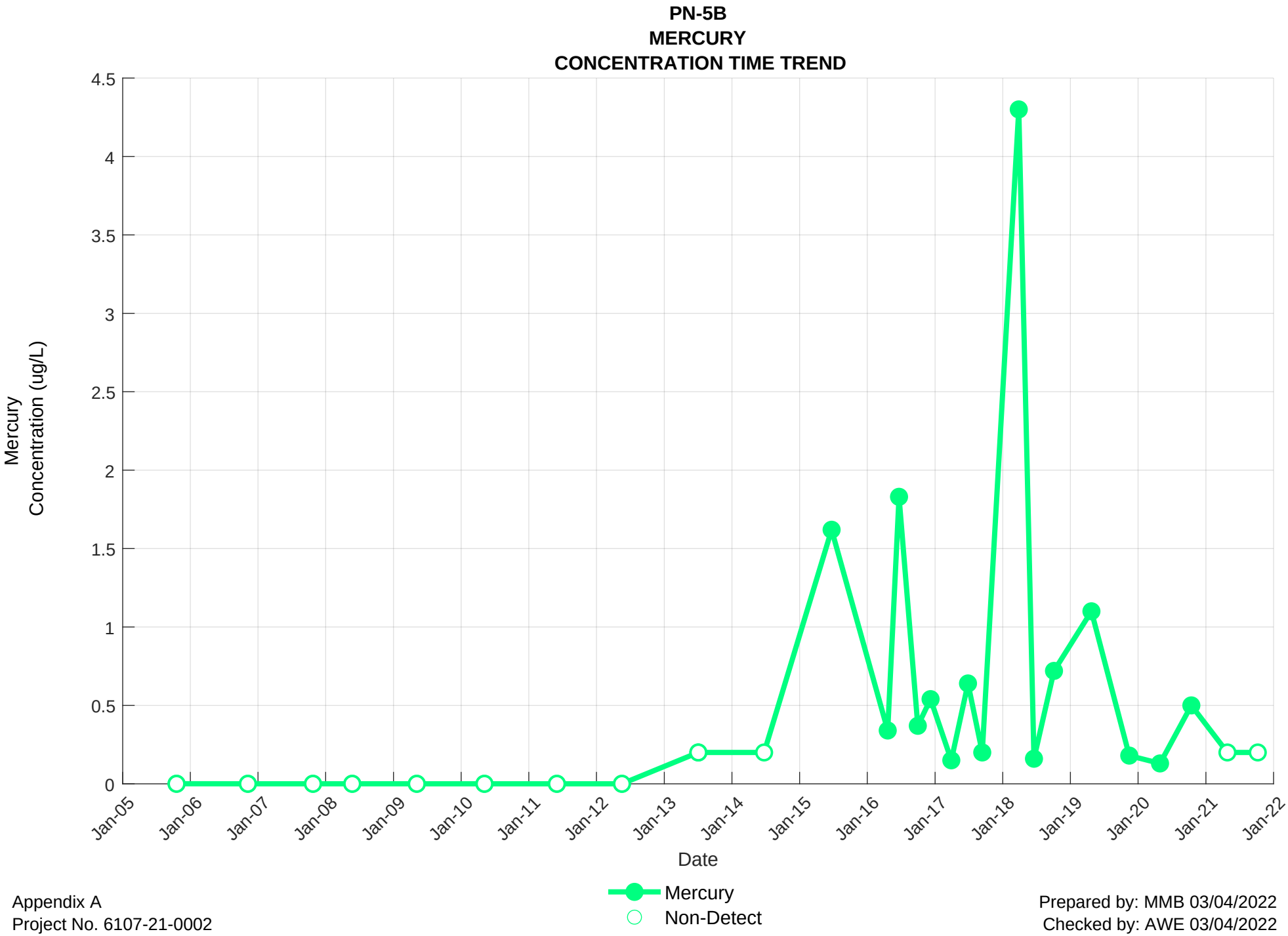


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-5B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

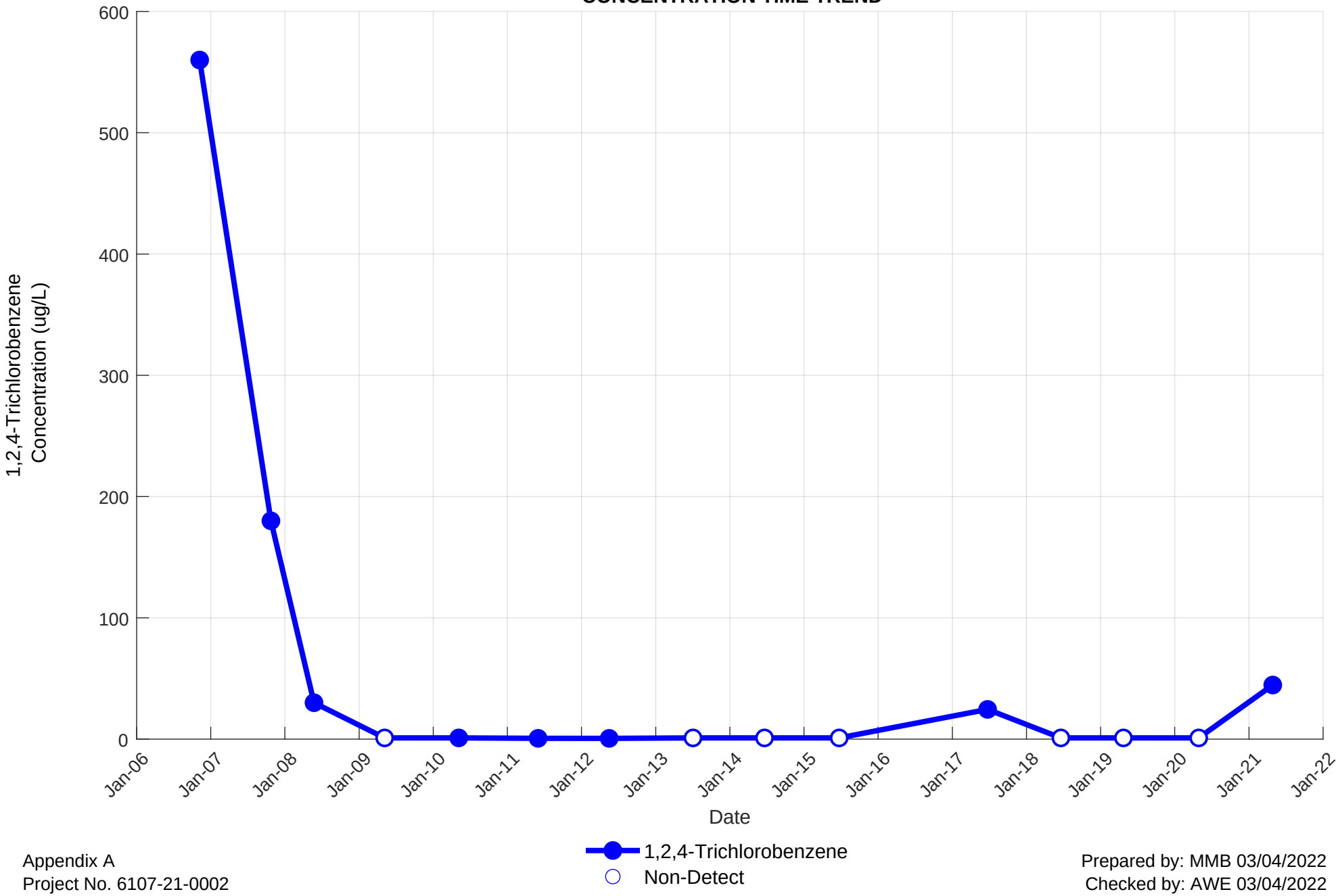


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



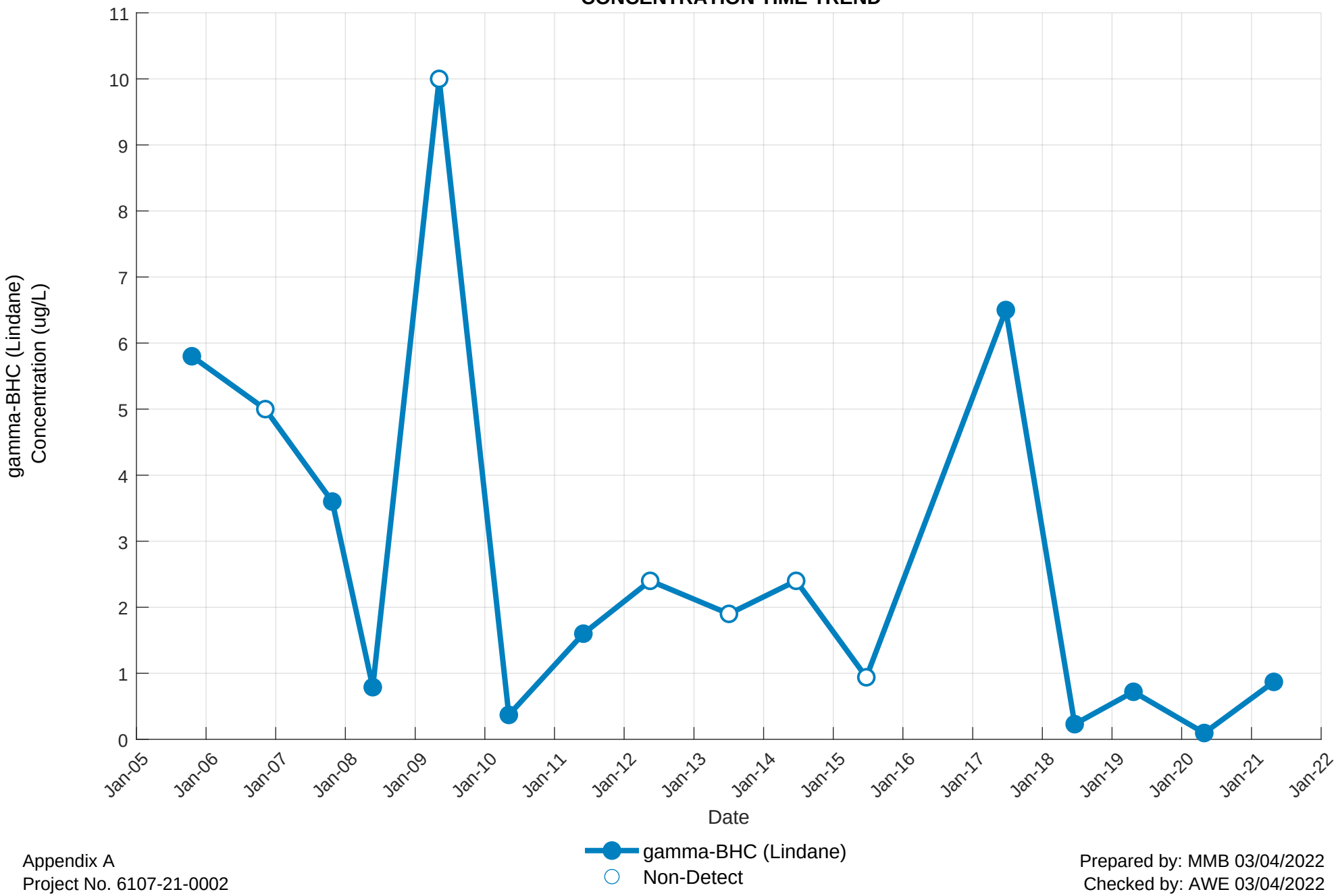
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-7A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

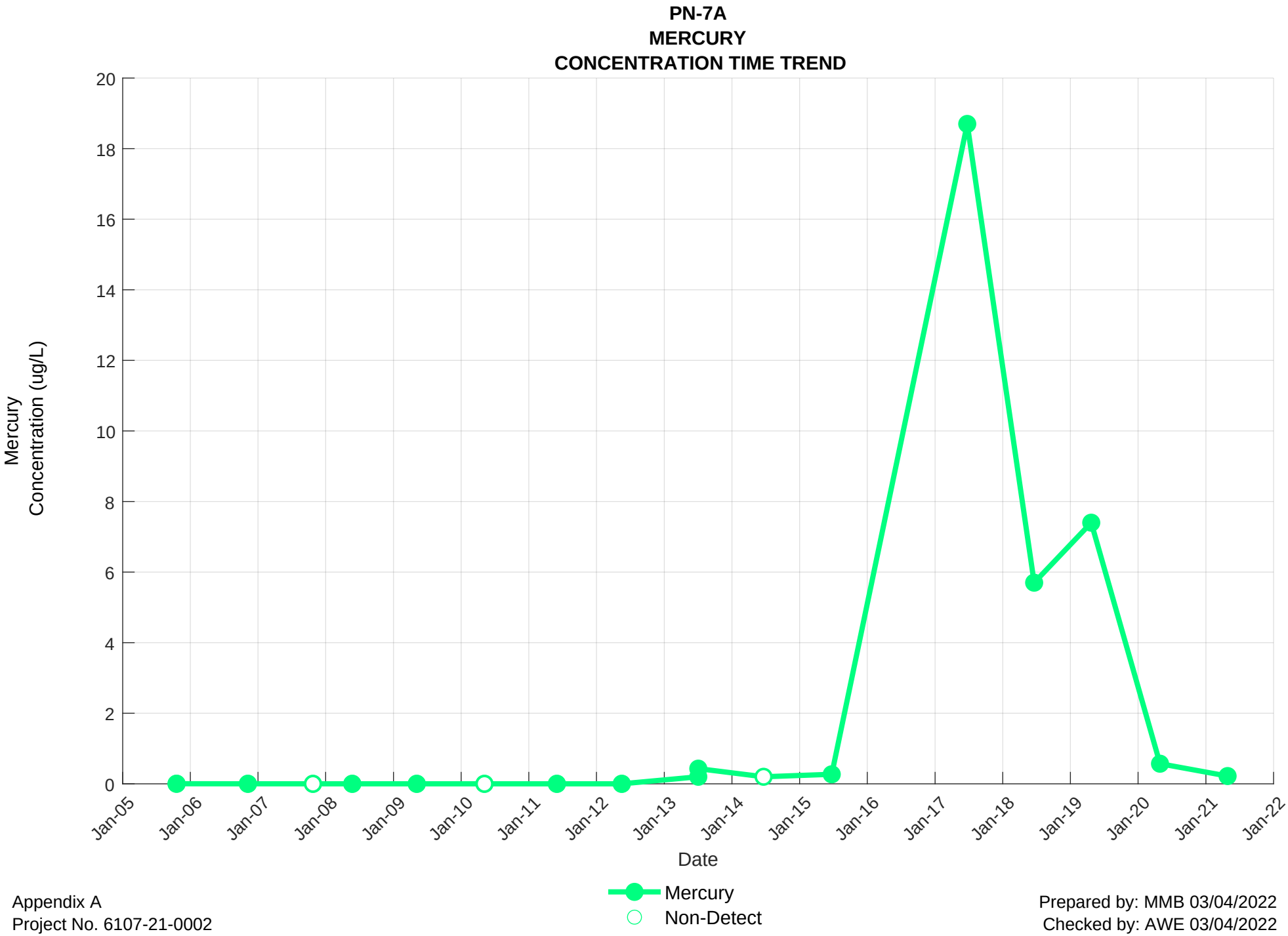


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

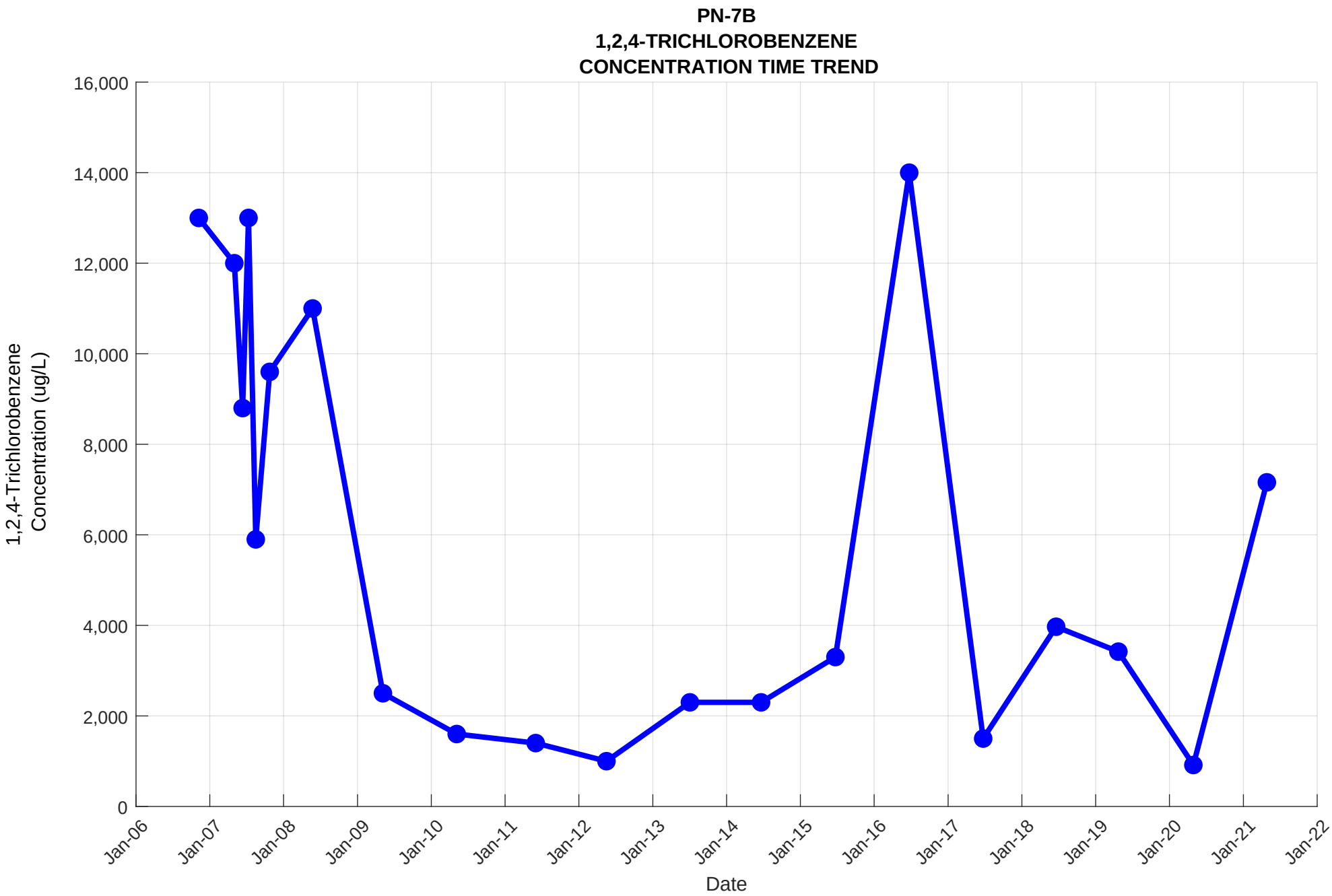
PN-7A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

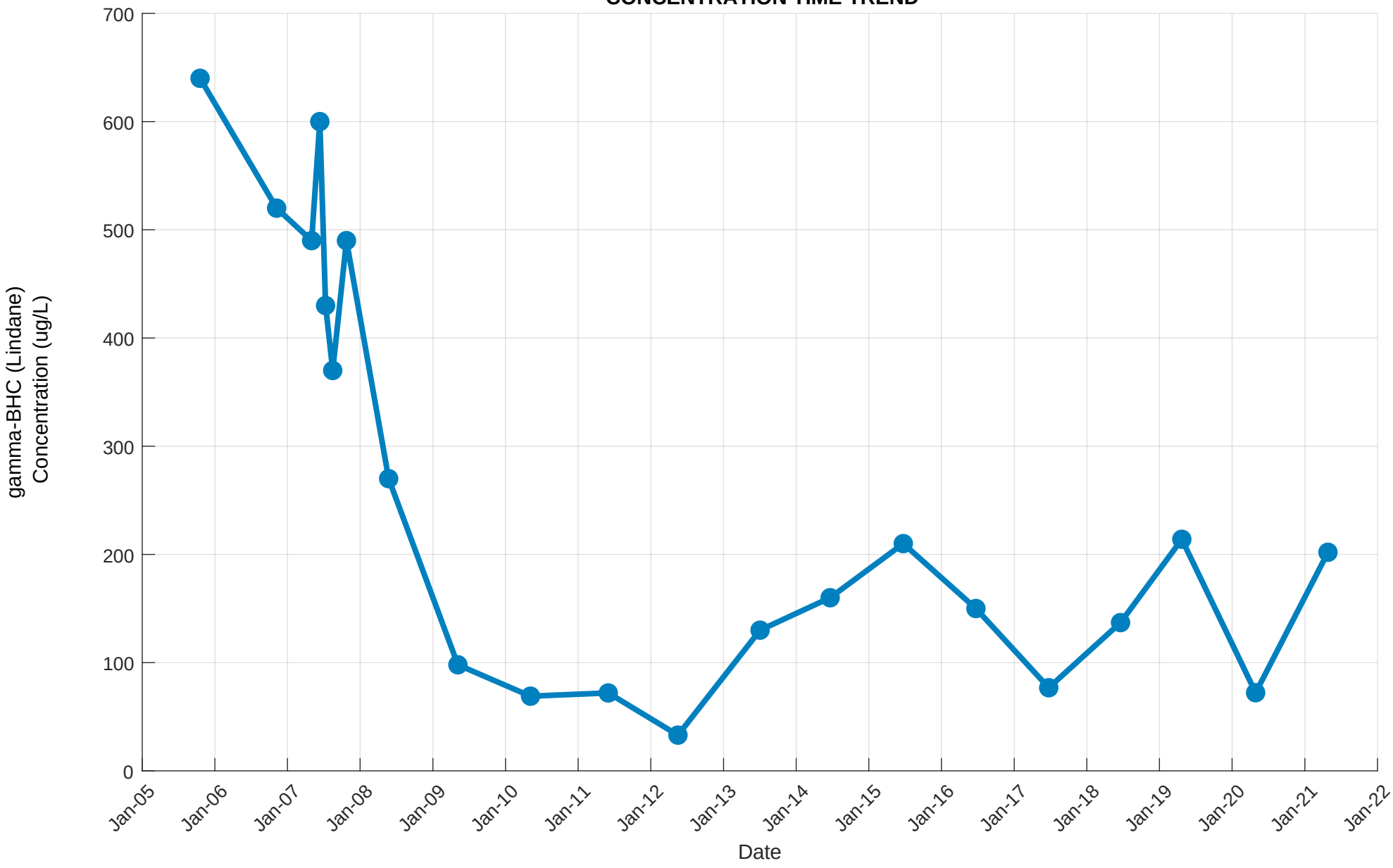


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

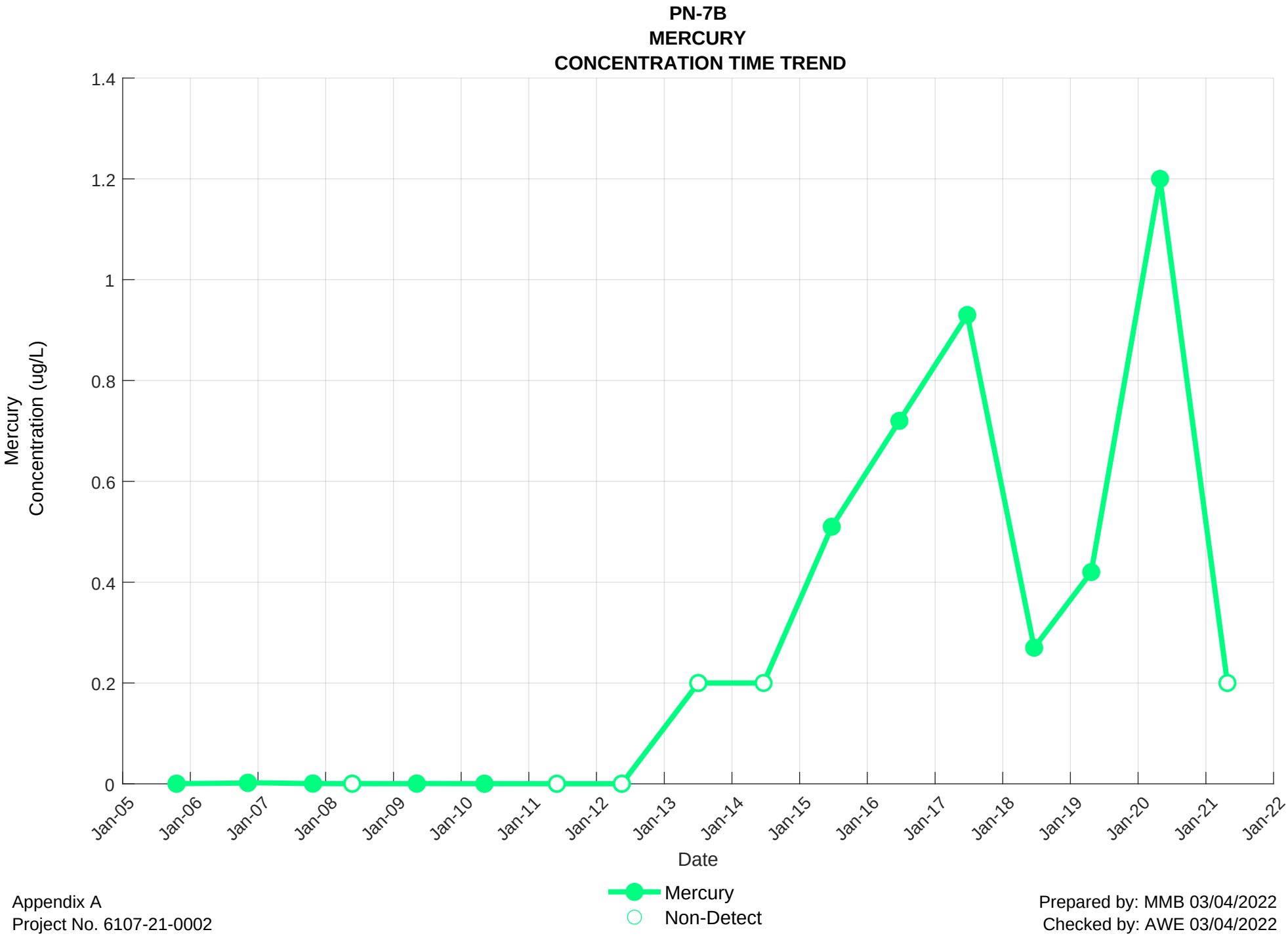


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-7B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

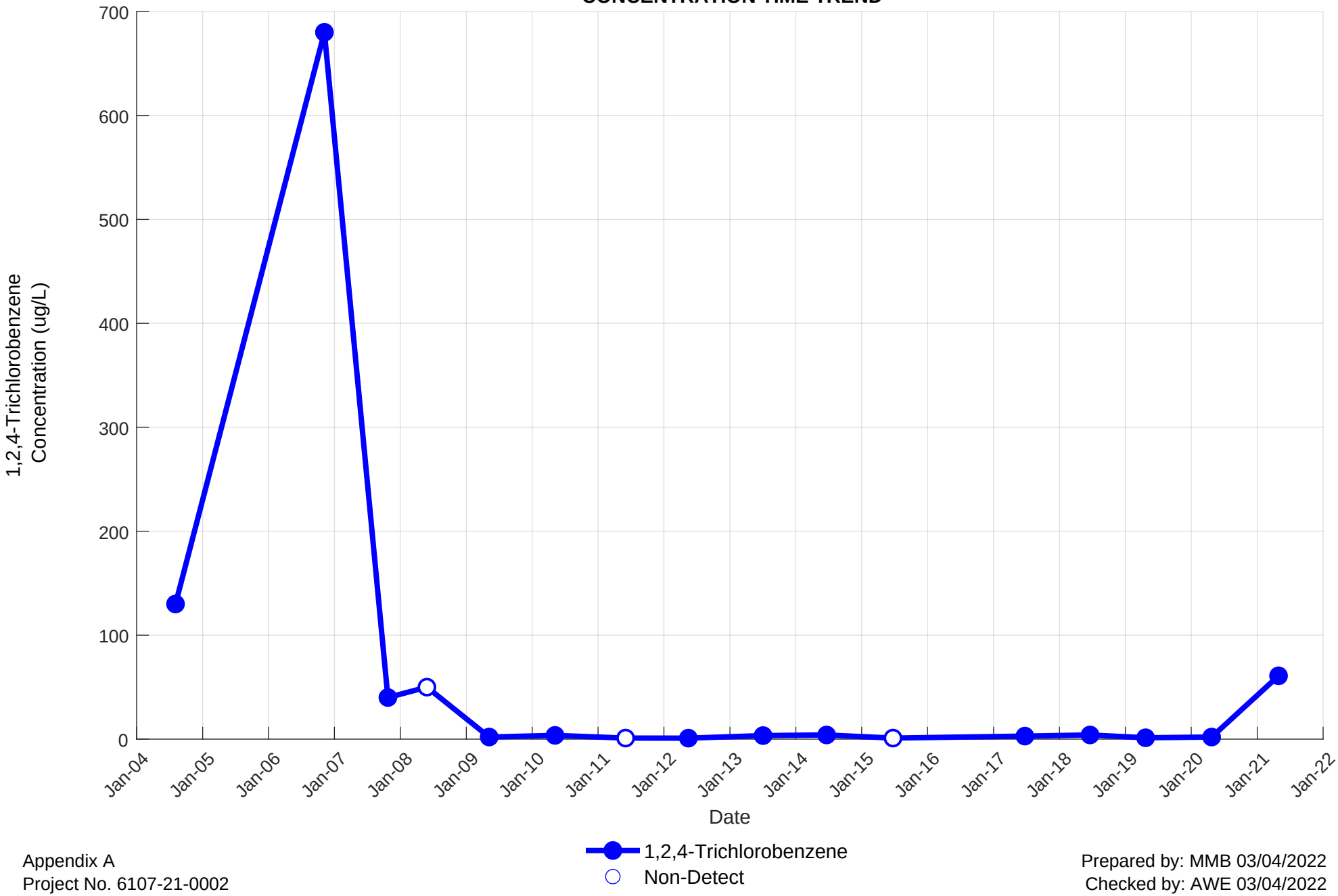


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



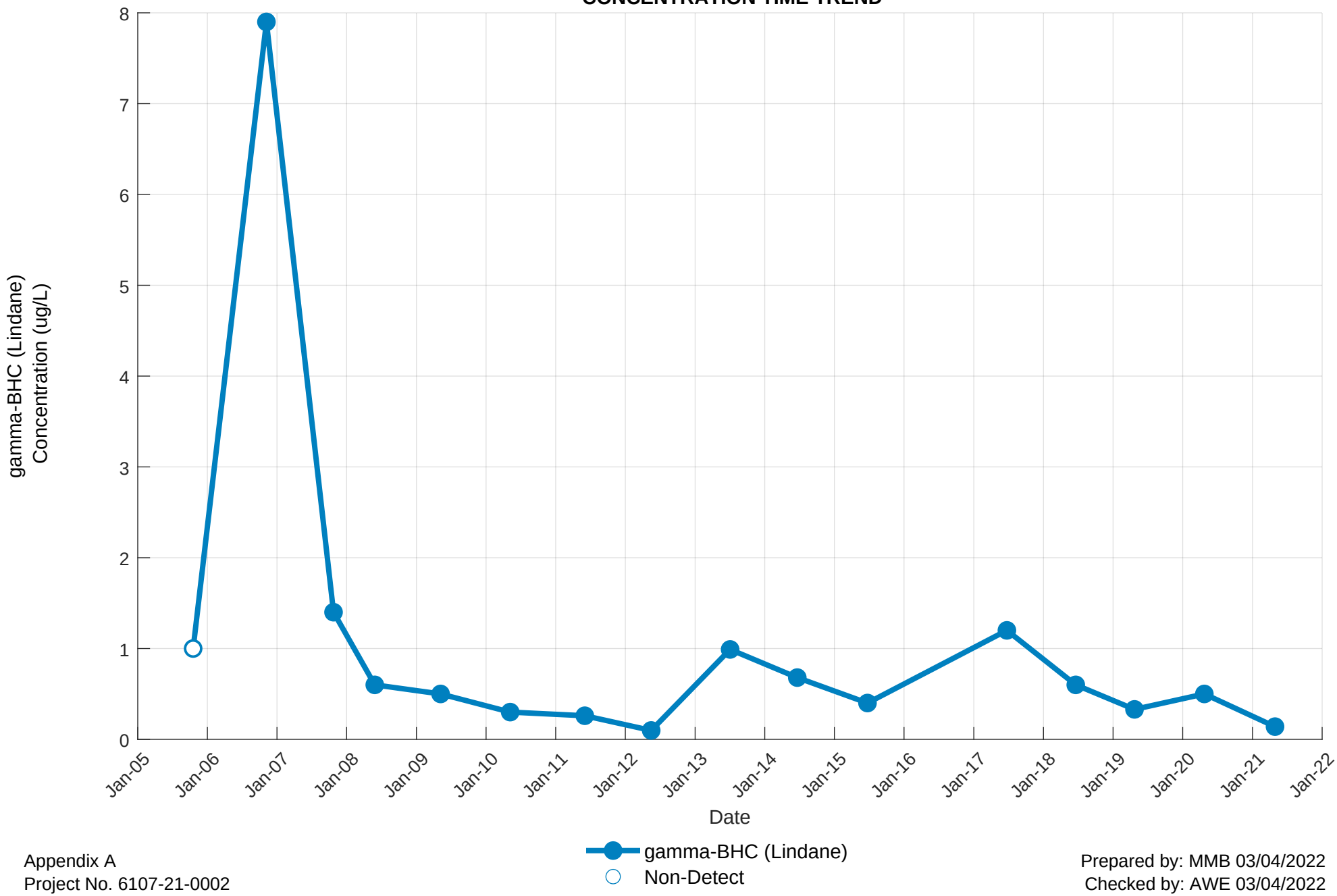
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-11A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



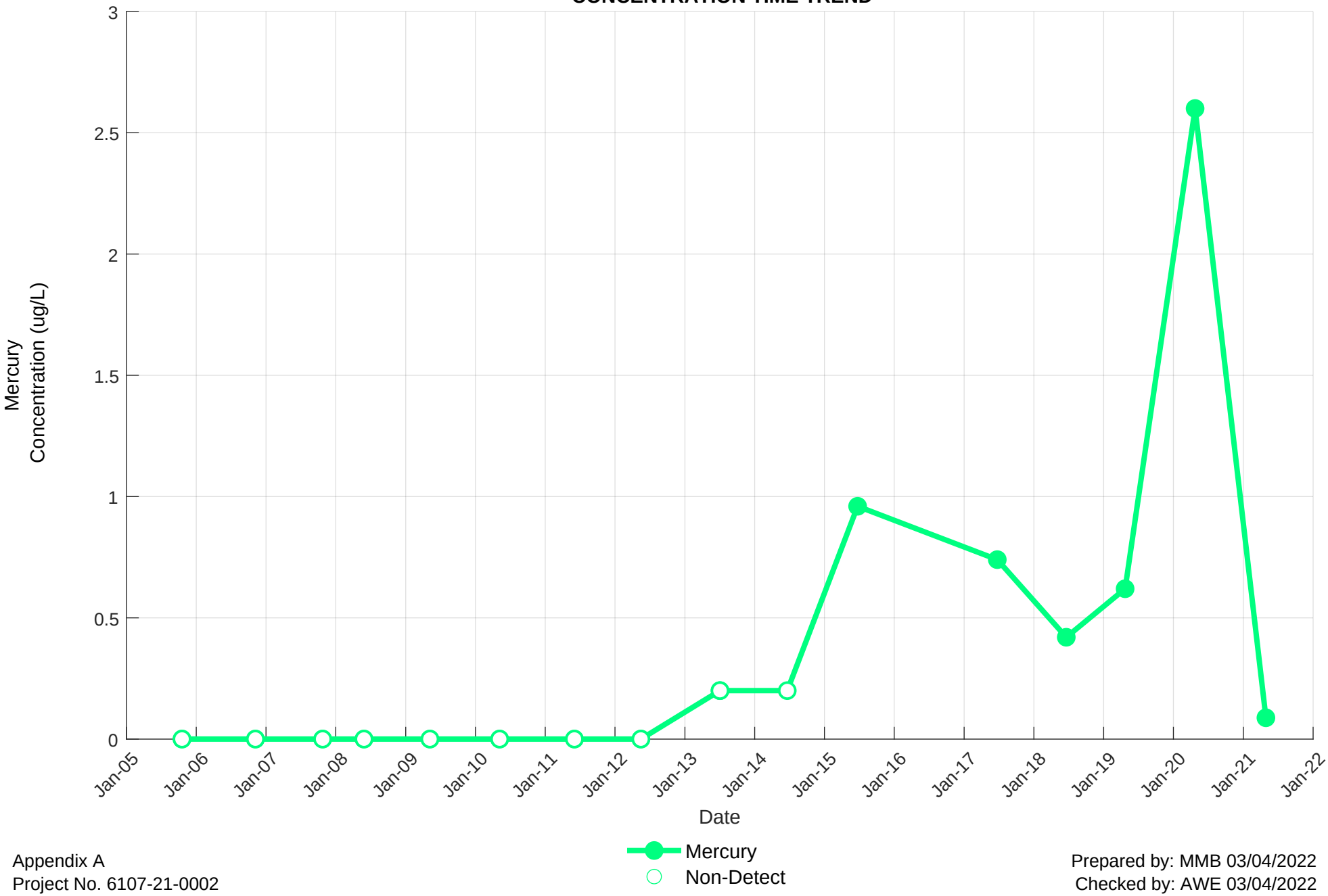
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-11A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



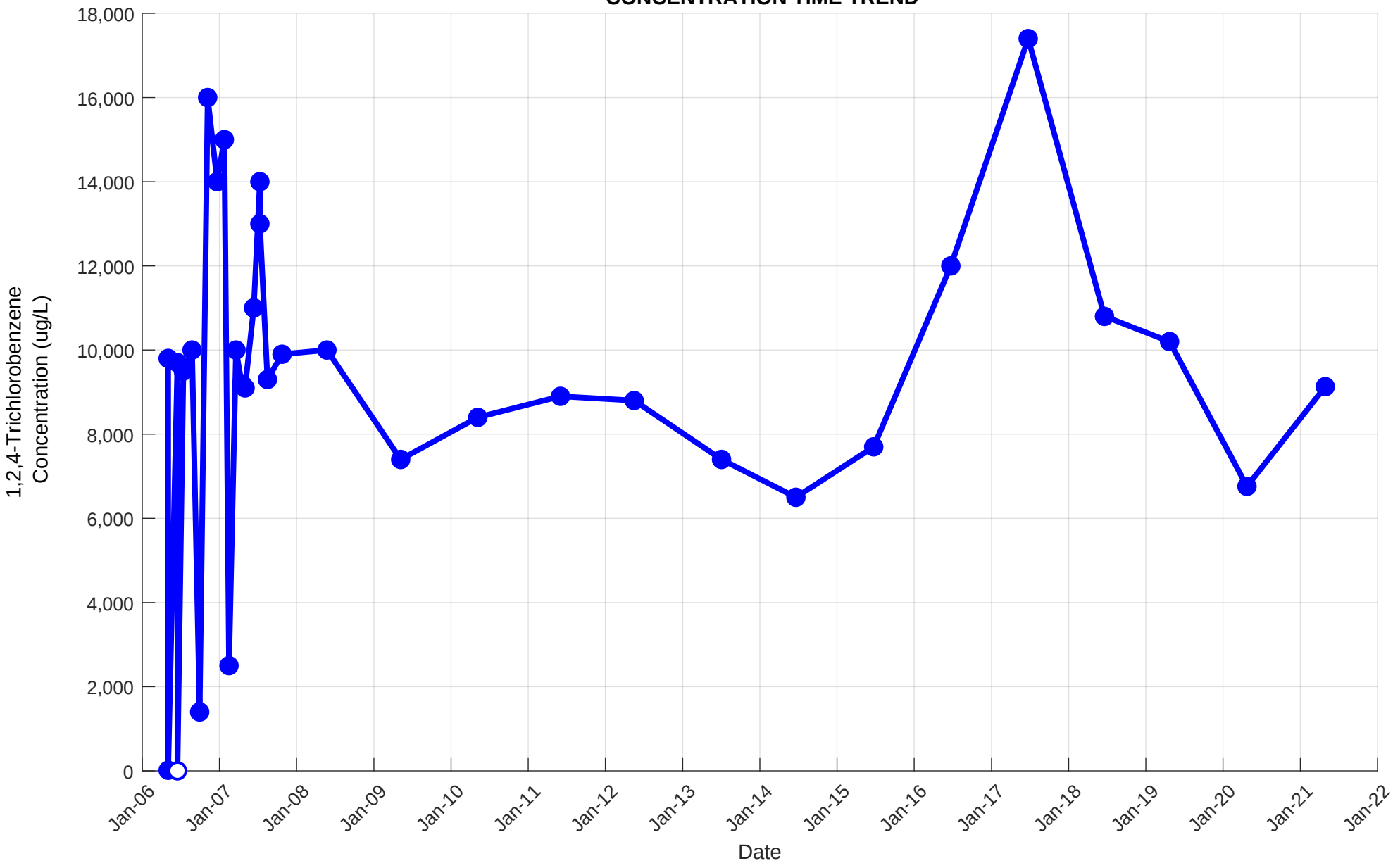
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-11A
MERCURY
CONCENTRATION TIME TREND



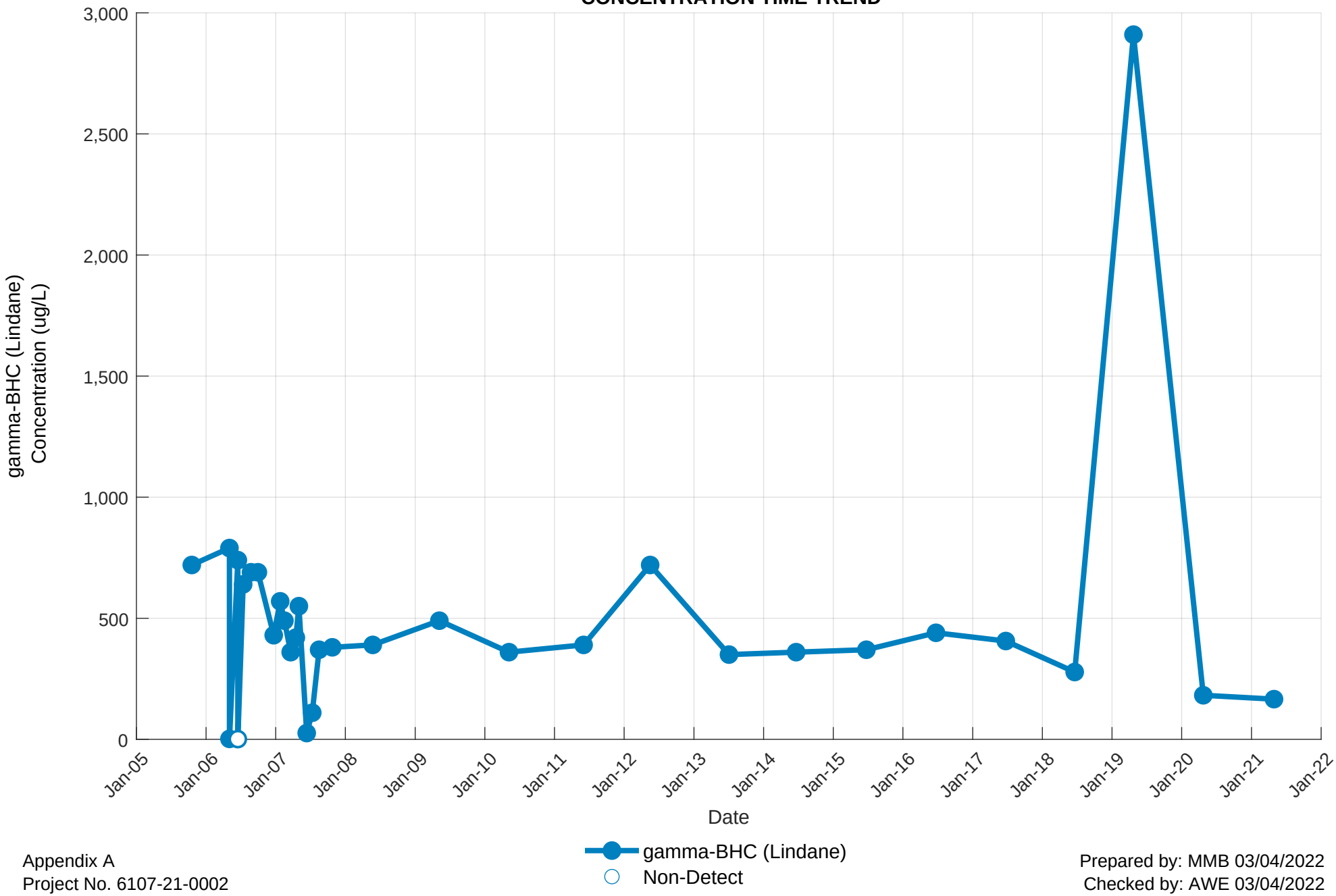
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-11B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

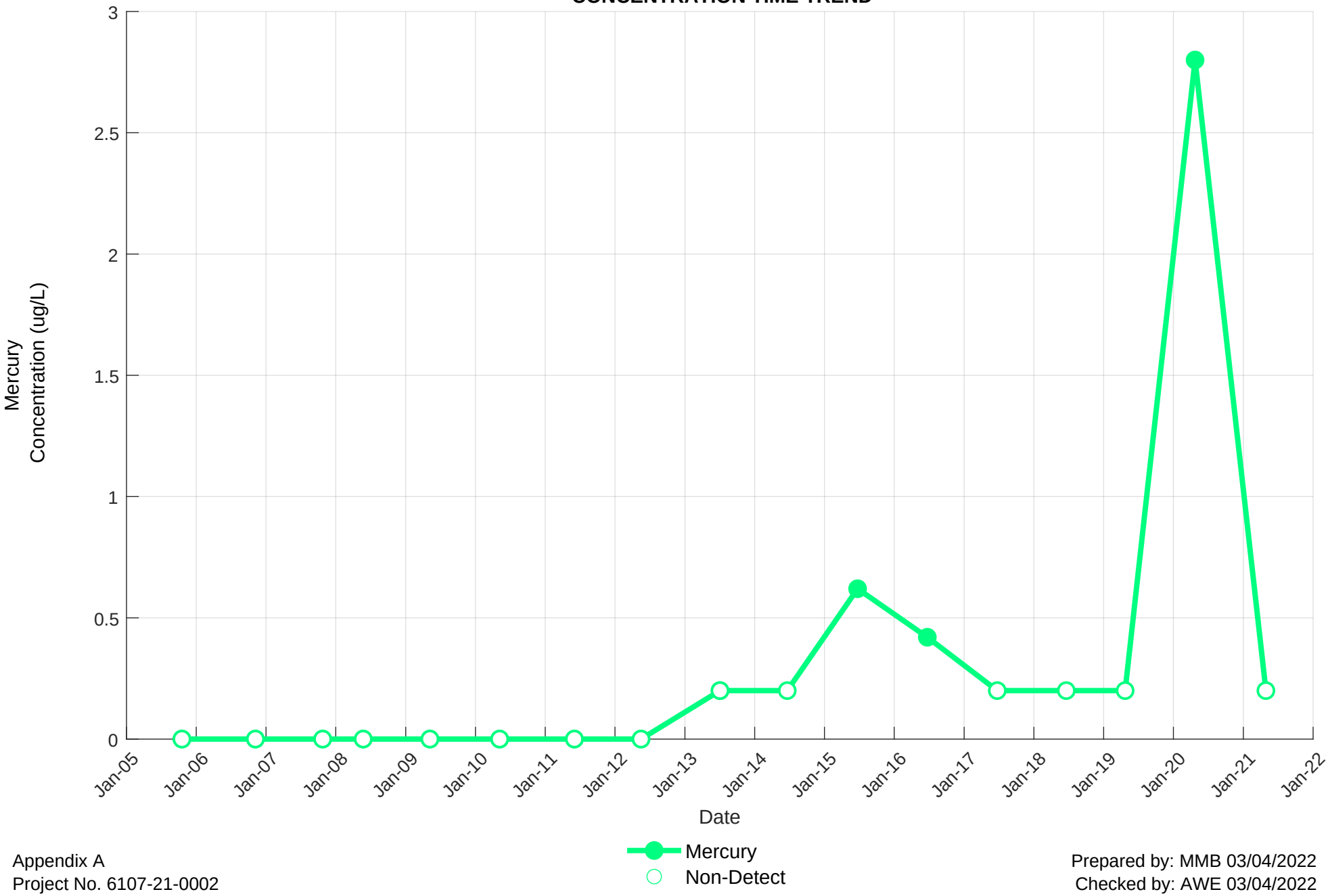
PN-11B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



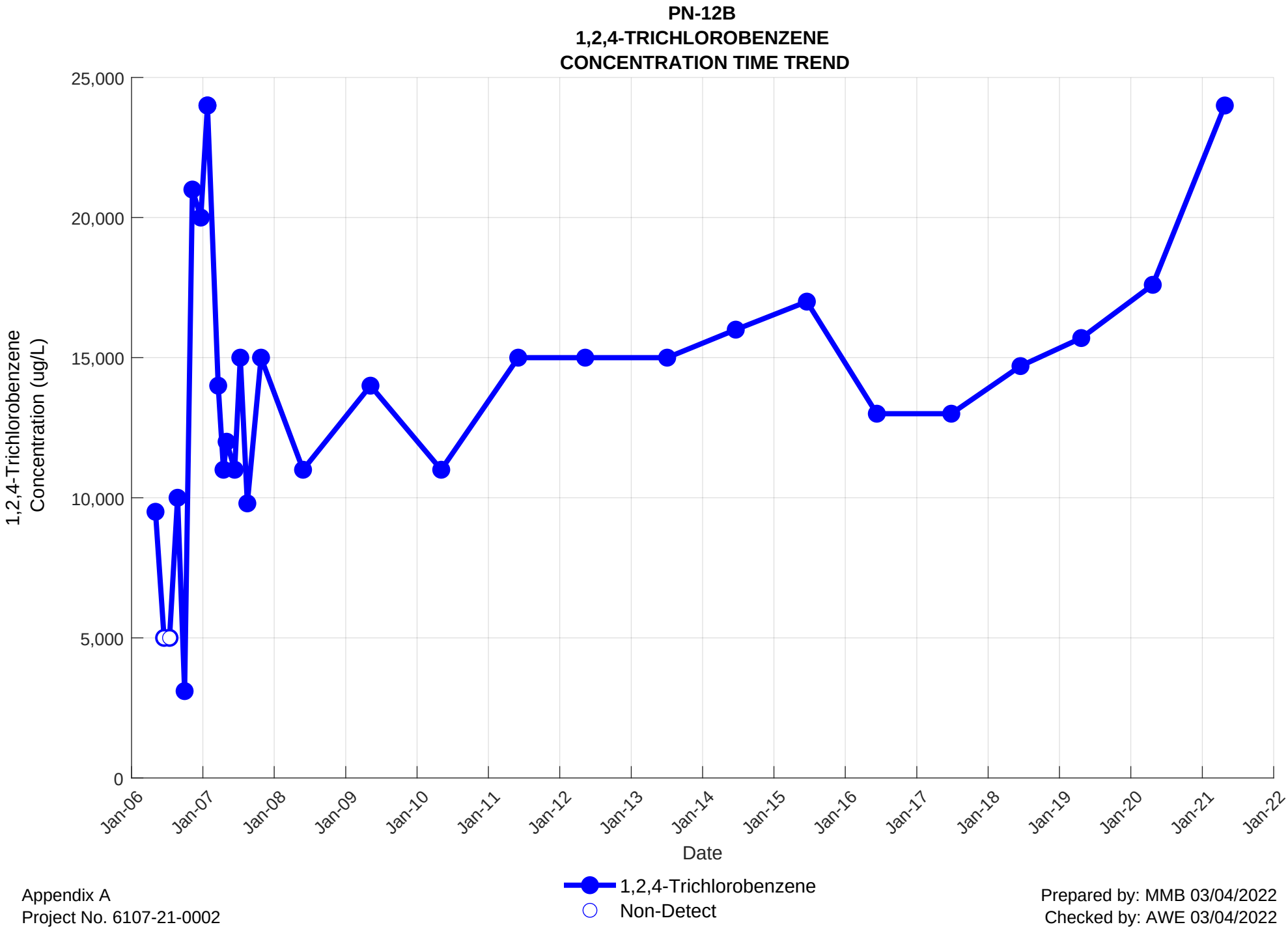
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

March 30, 2022

PN-11B
MERCURY
CONCENTRATION TIME TREND

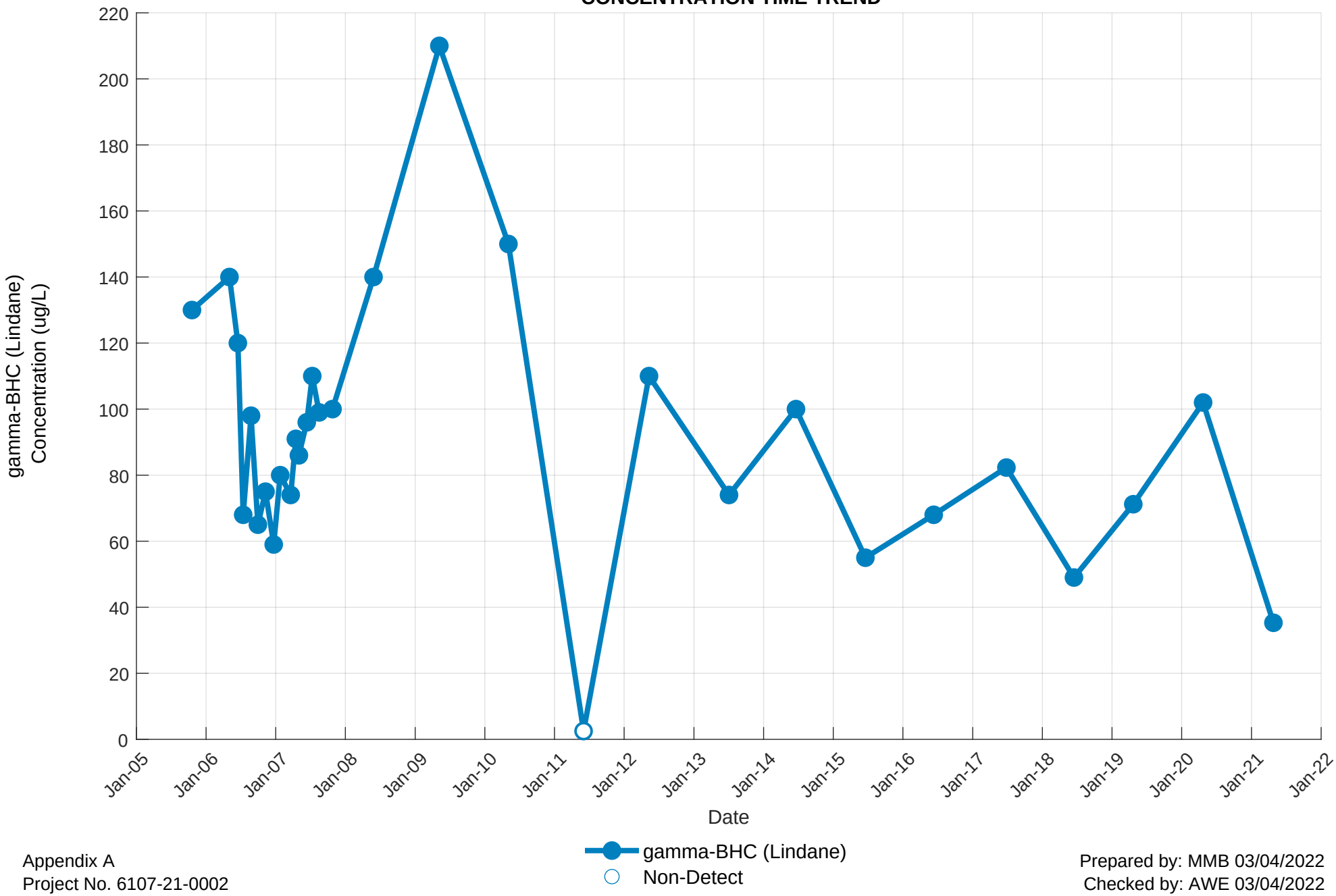


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



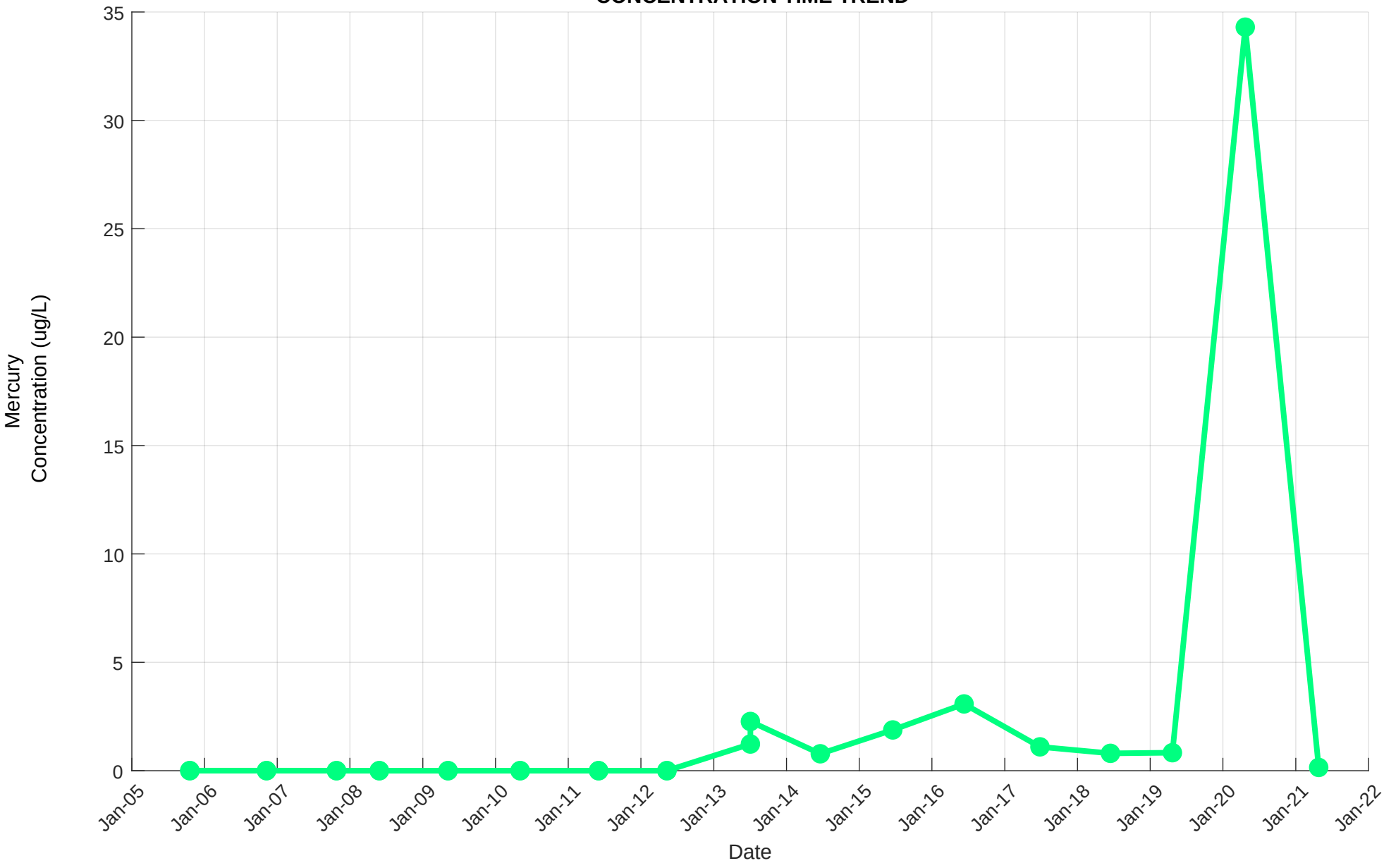
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-12B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



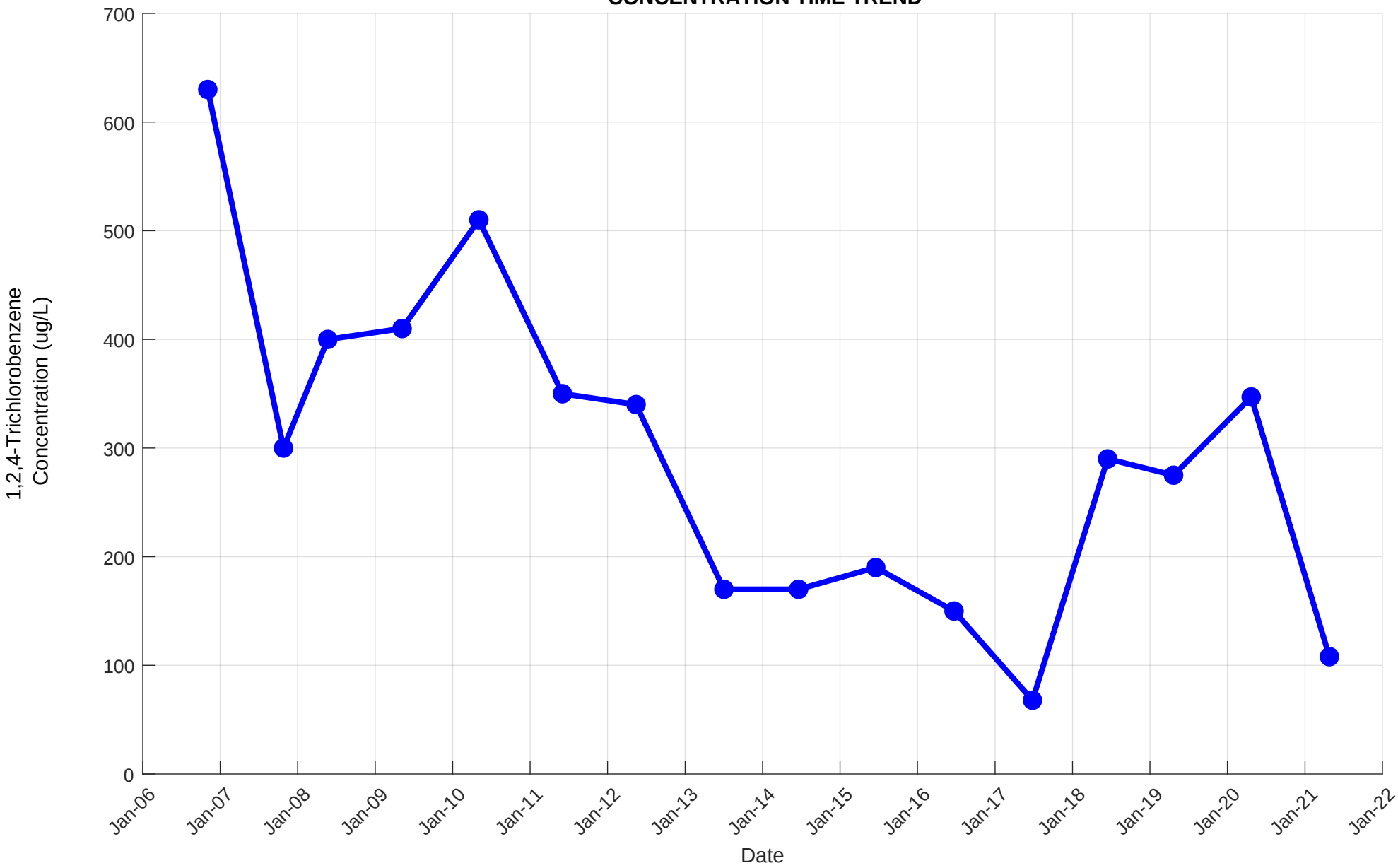
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-12B
MERCURY
CONCENTRATION TIME TREND



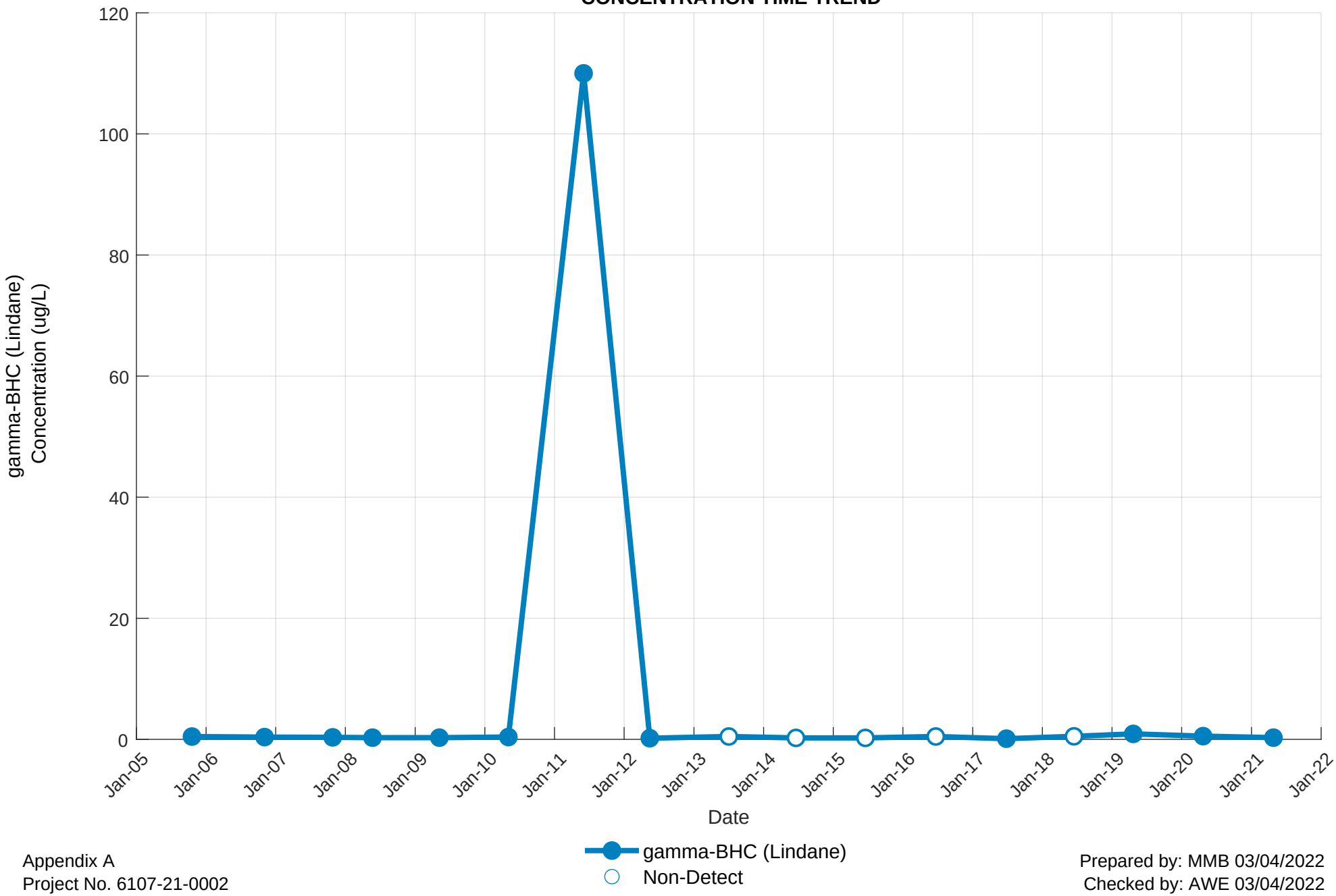
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-14A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

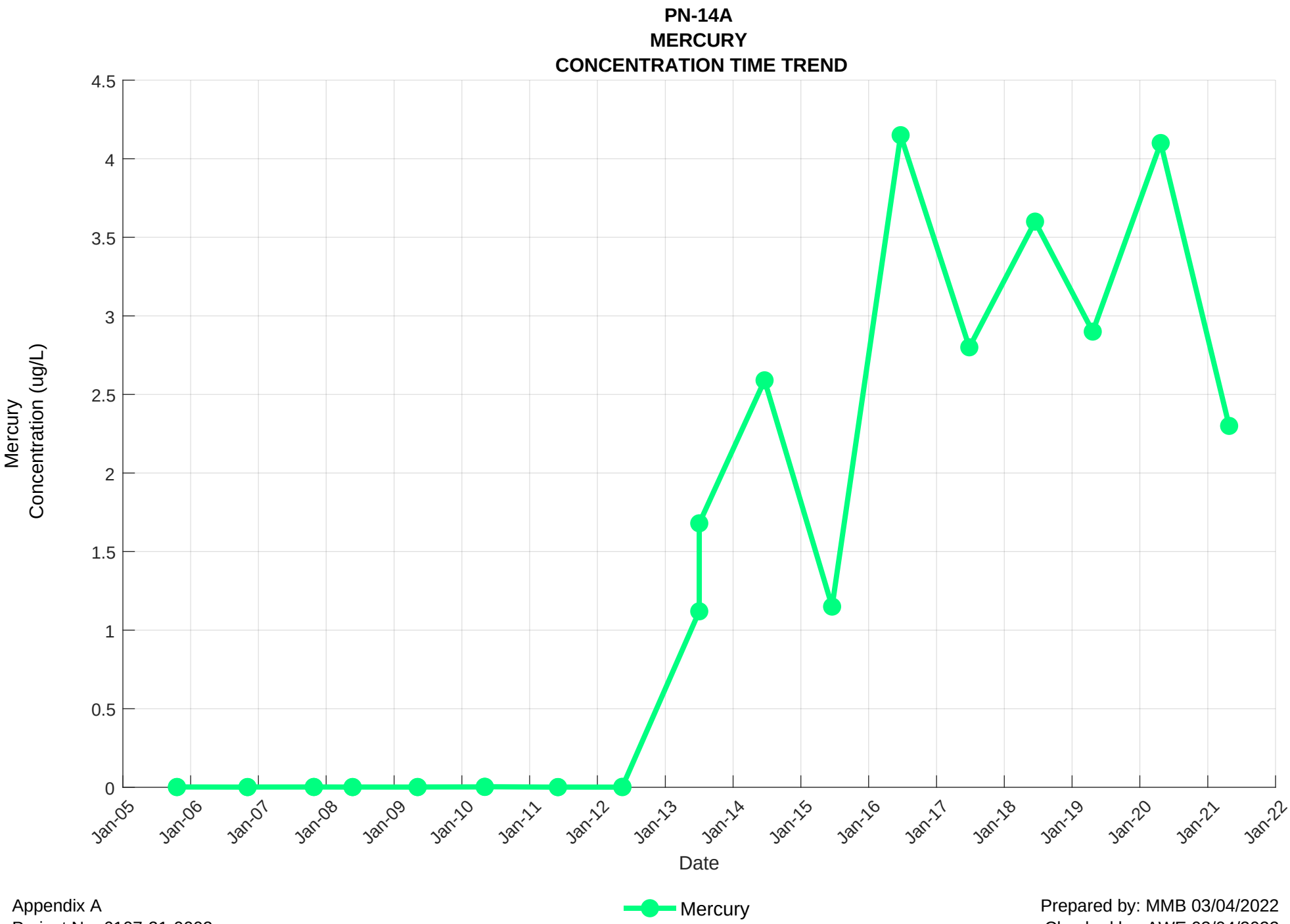


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-14A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

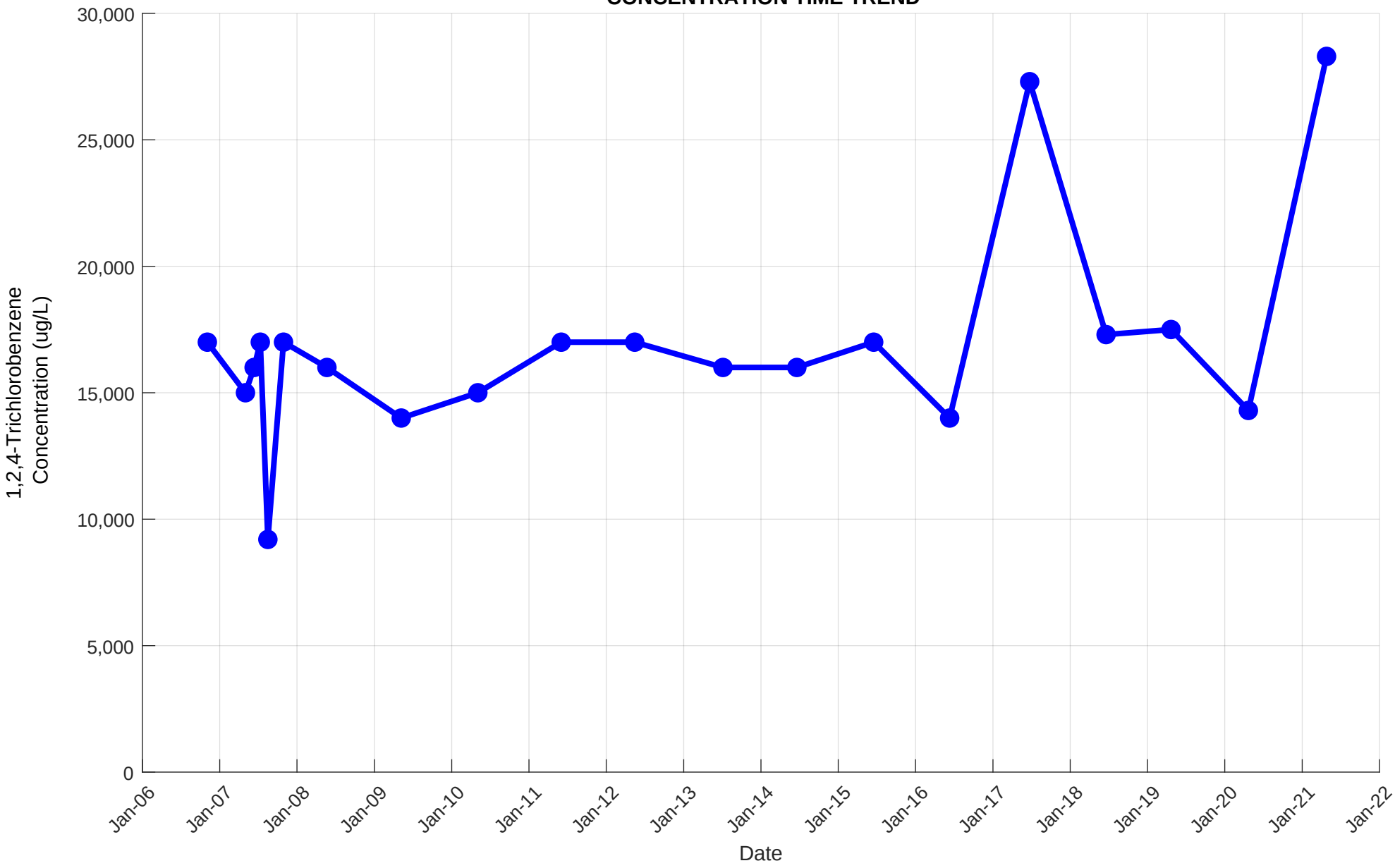


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



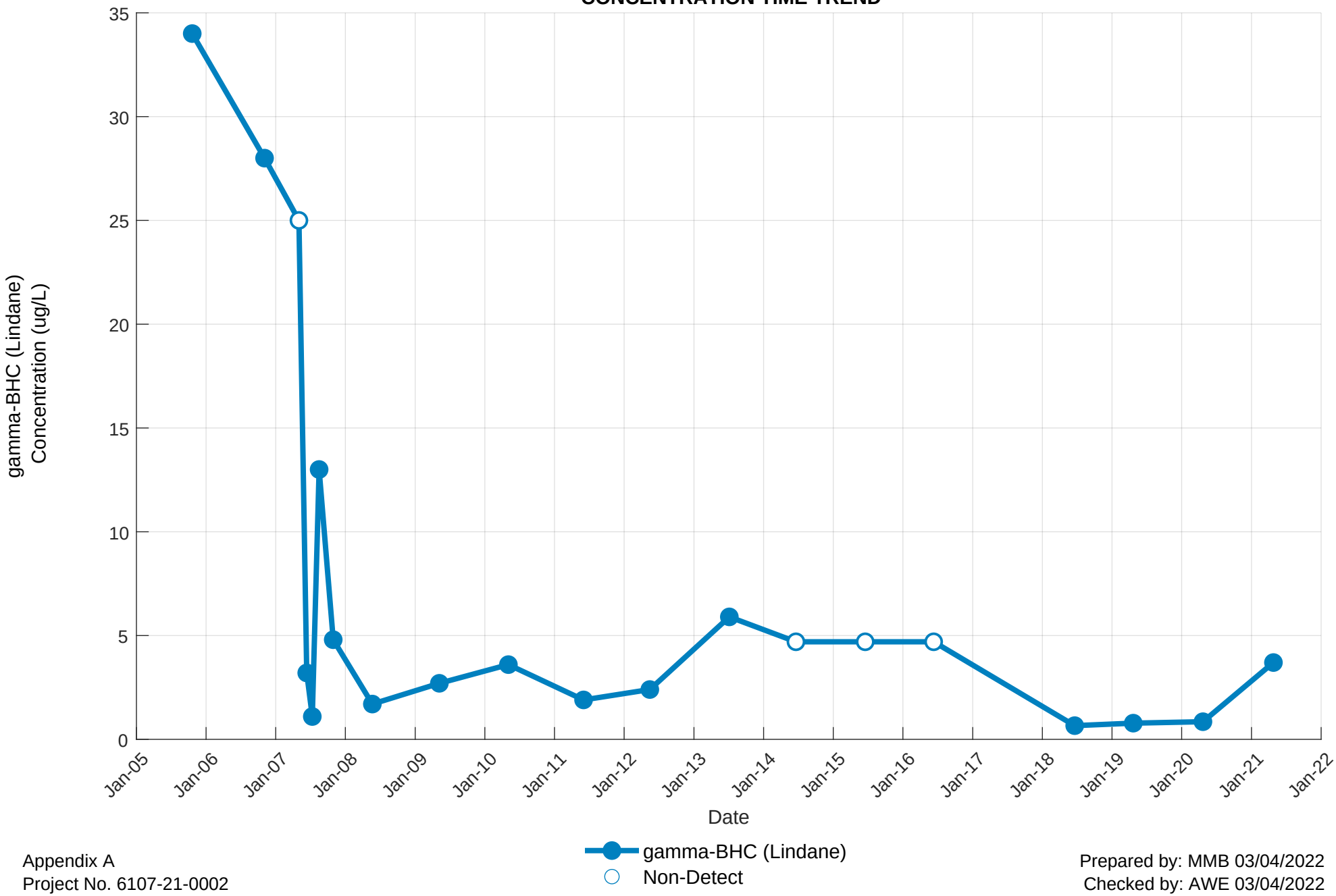
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-15B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

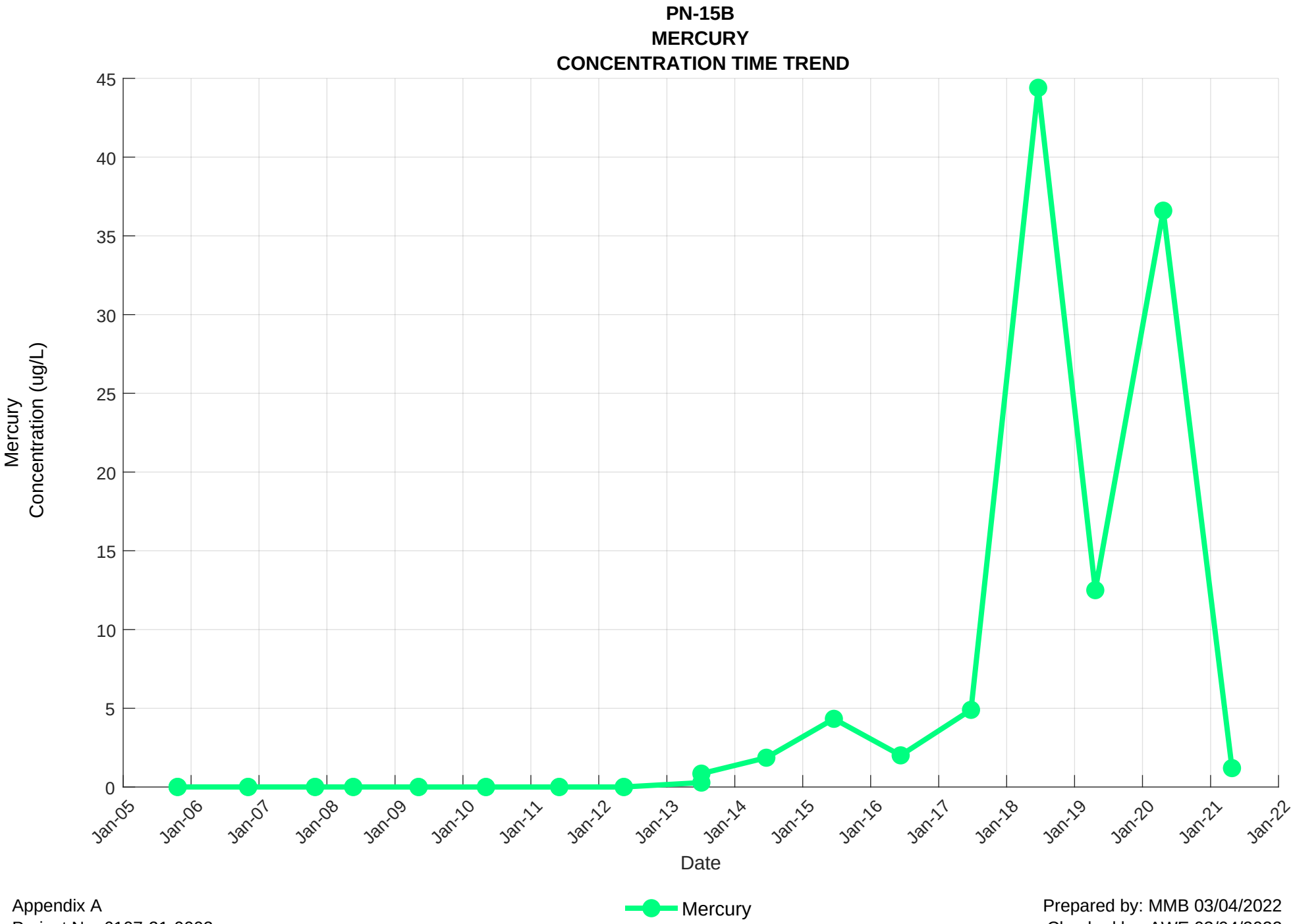


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-15B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

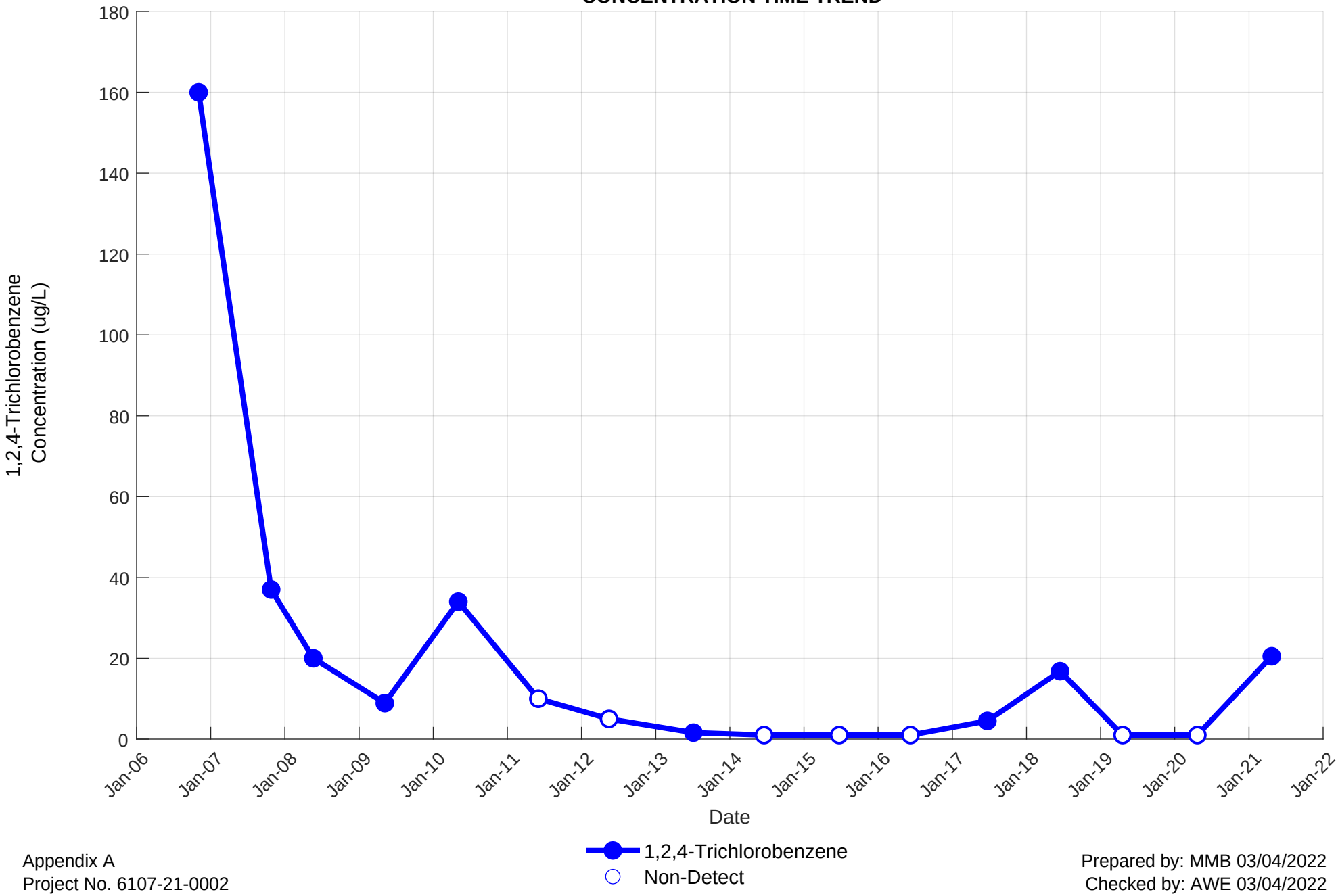


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



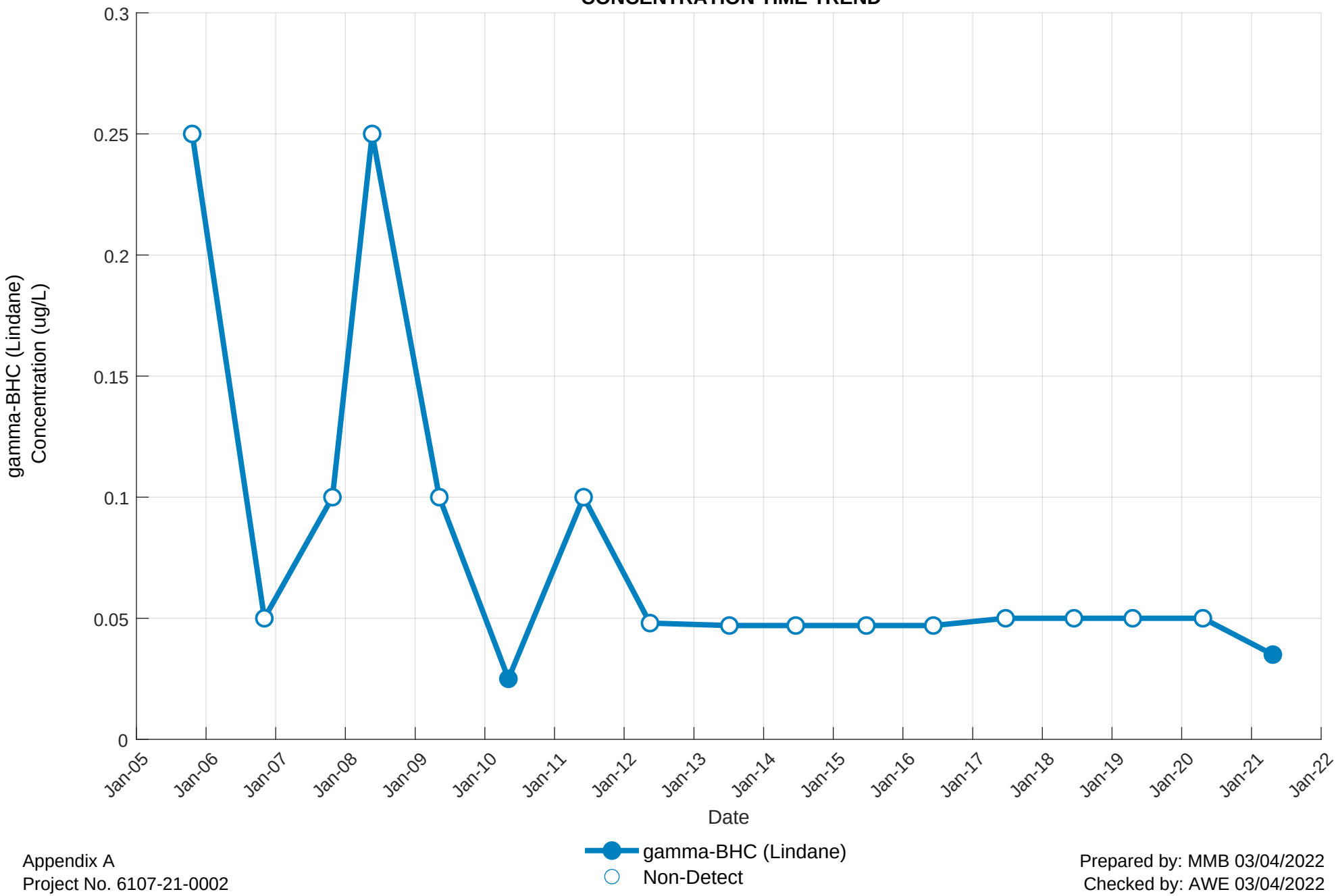
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-17A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

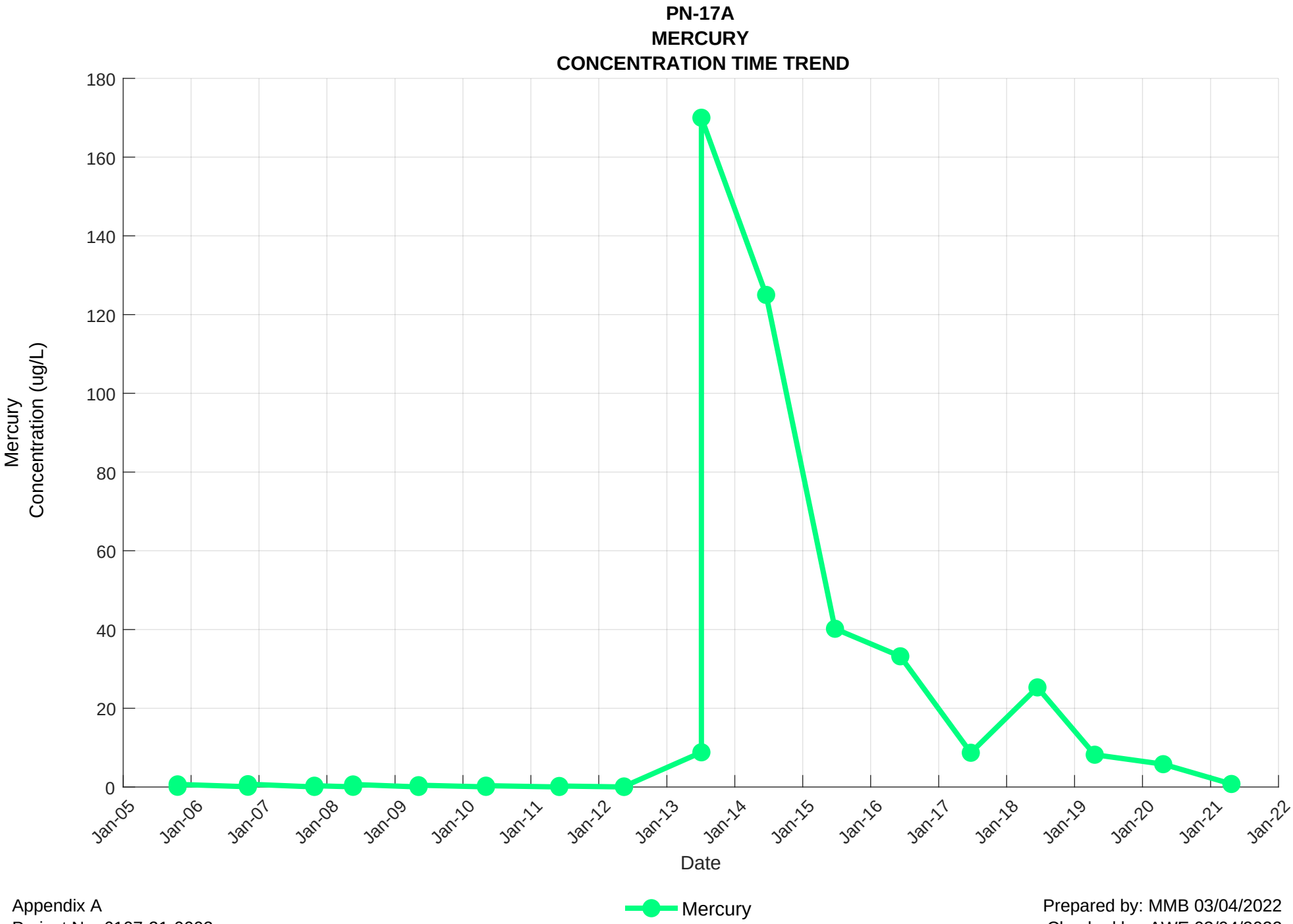


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-17A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

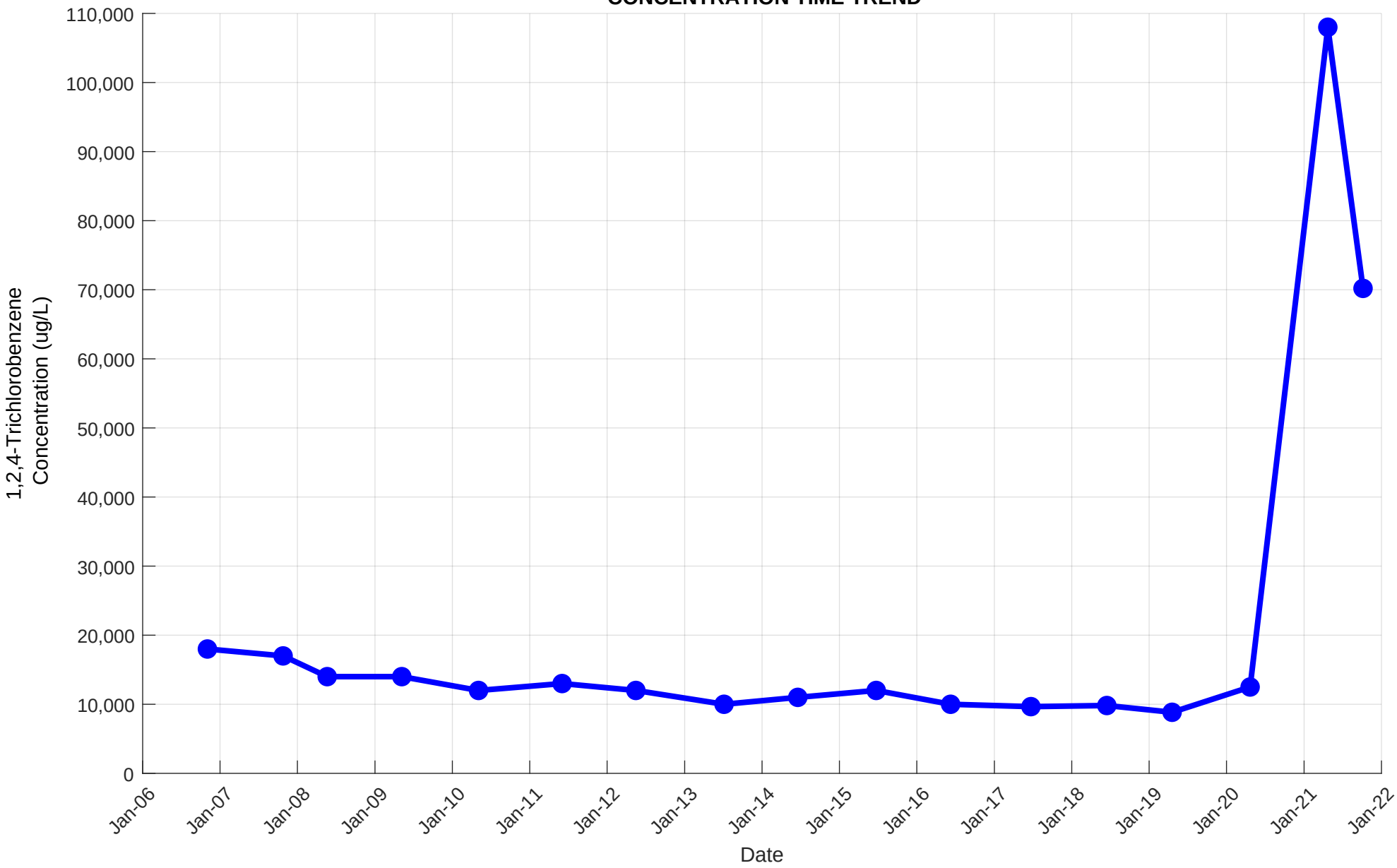


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



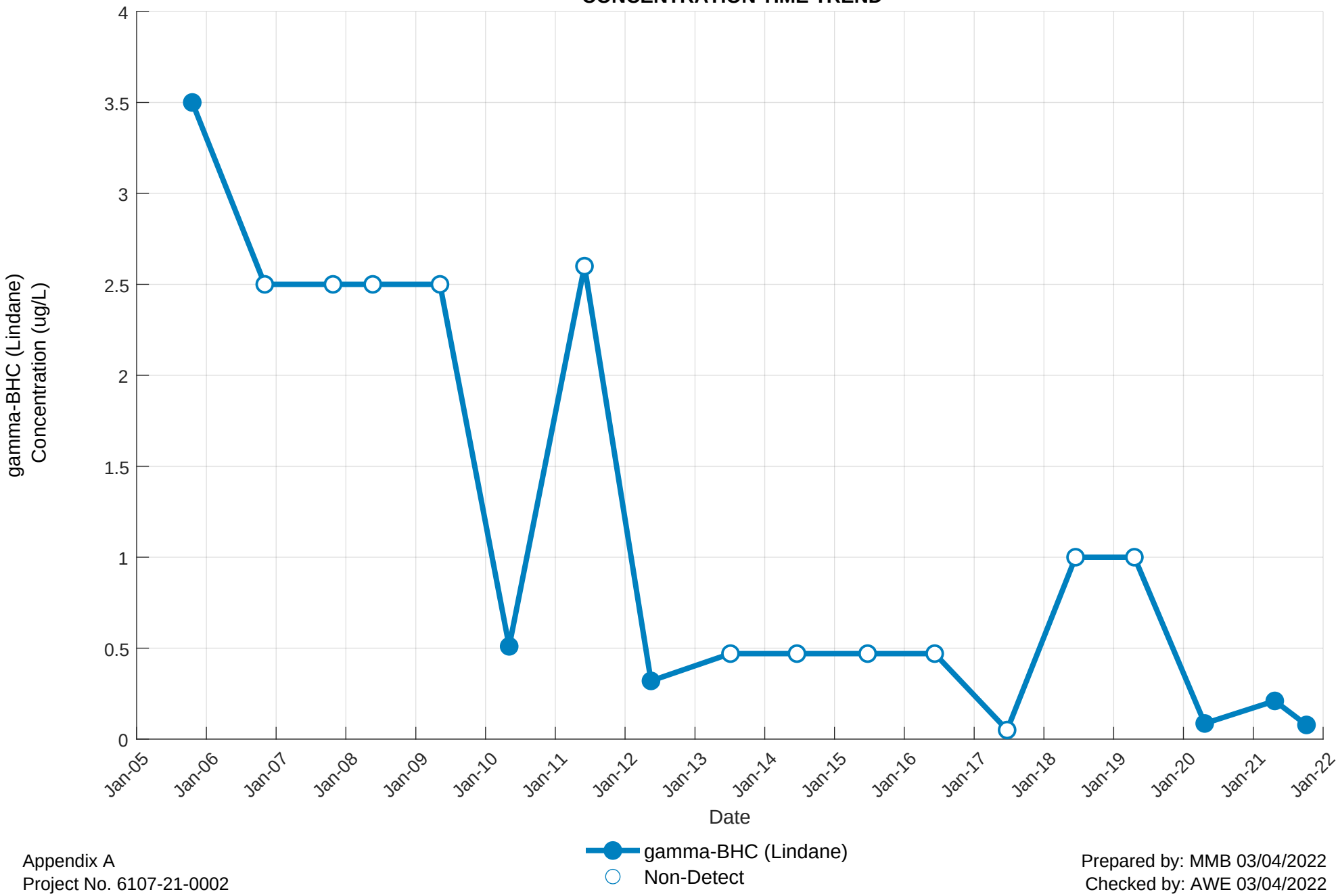
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-17B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

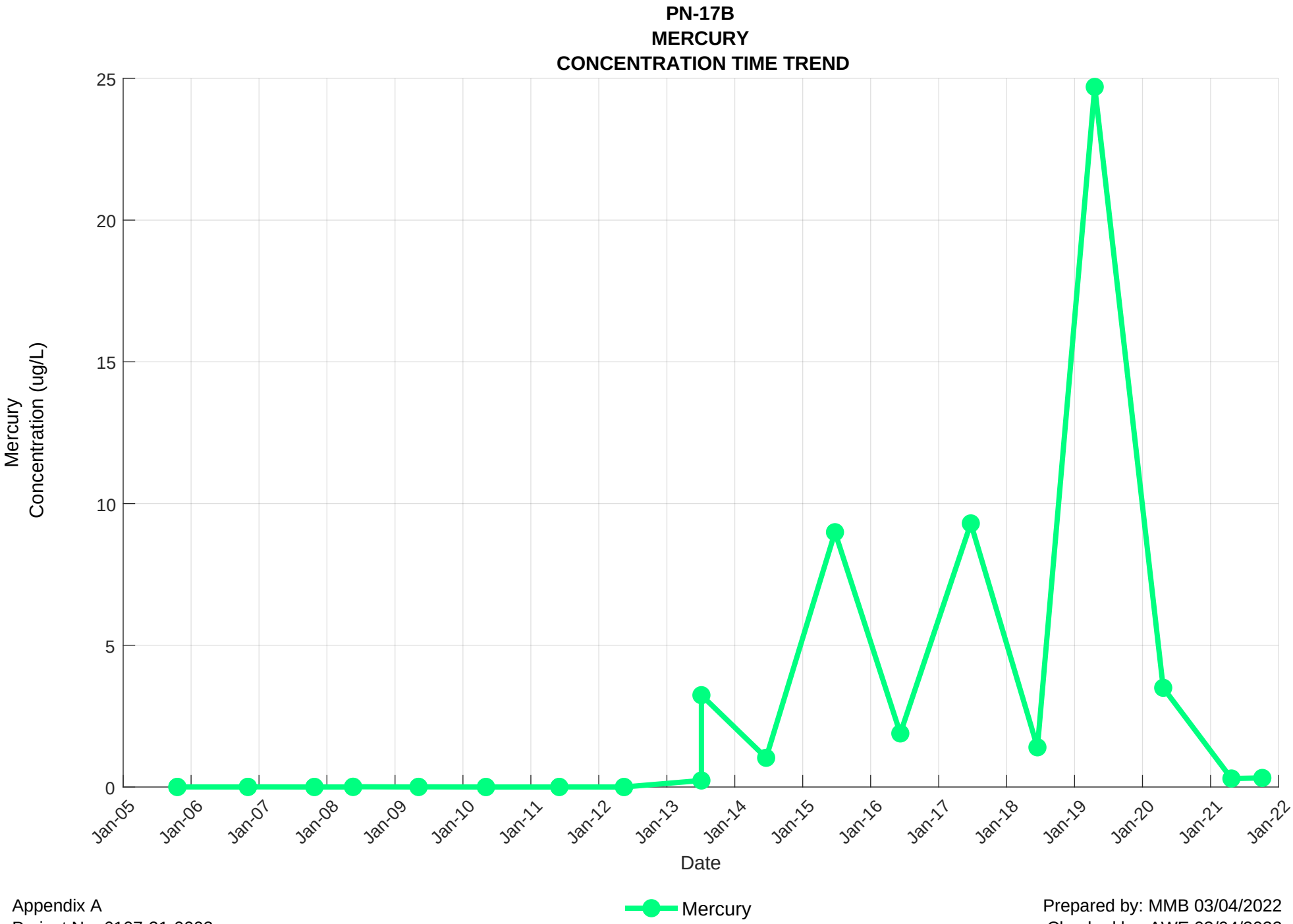


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-17B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

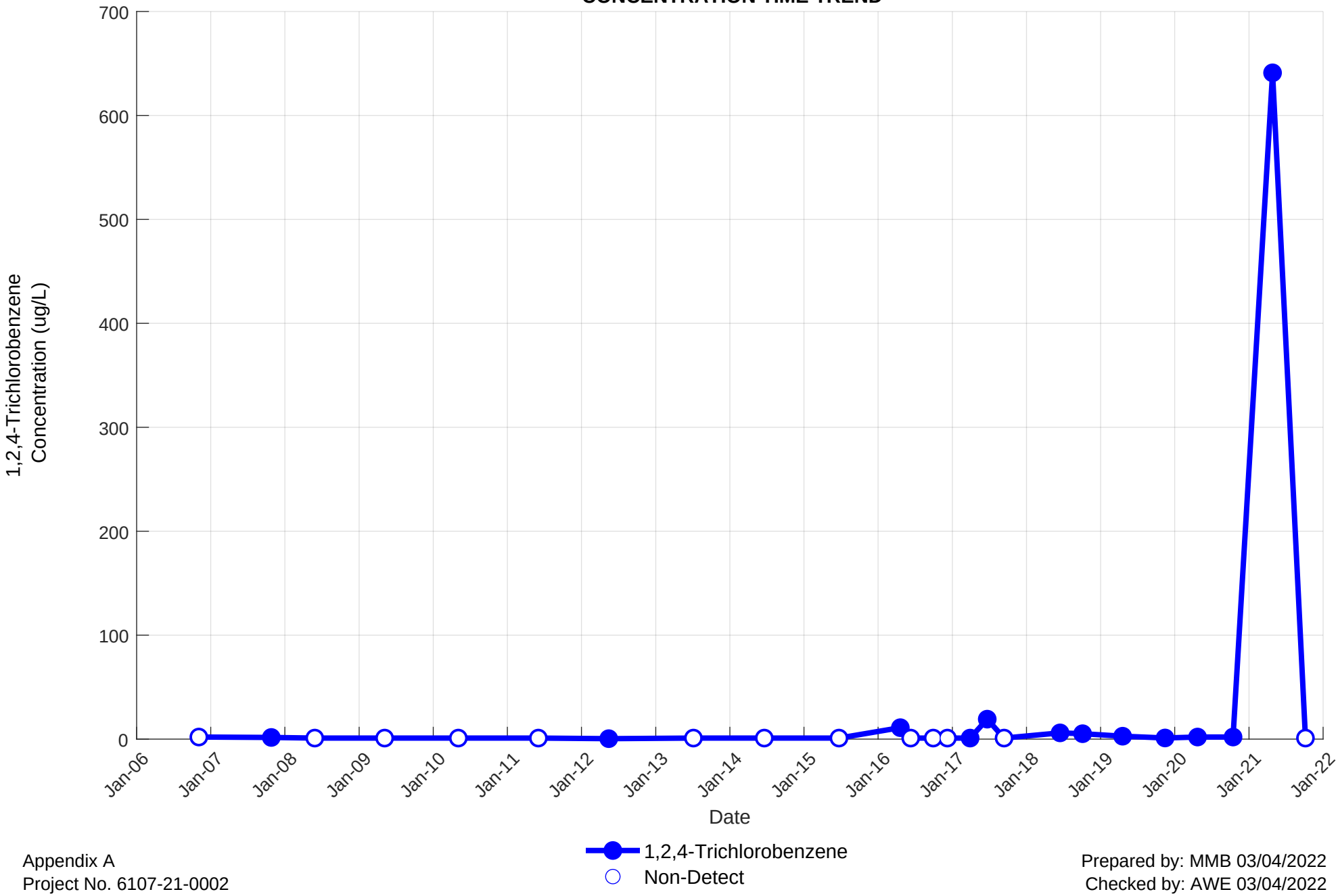


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



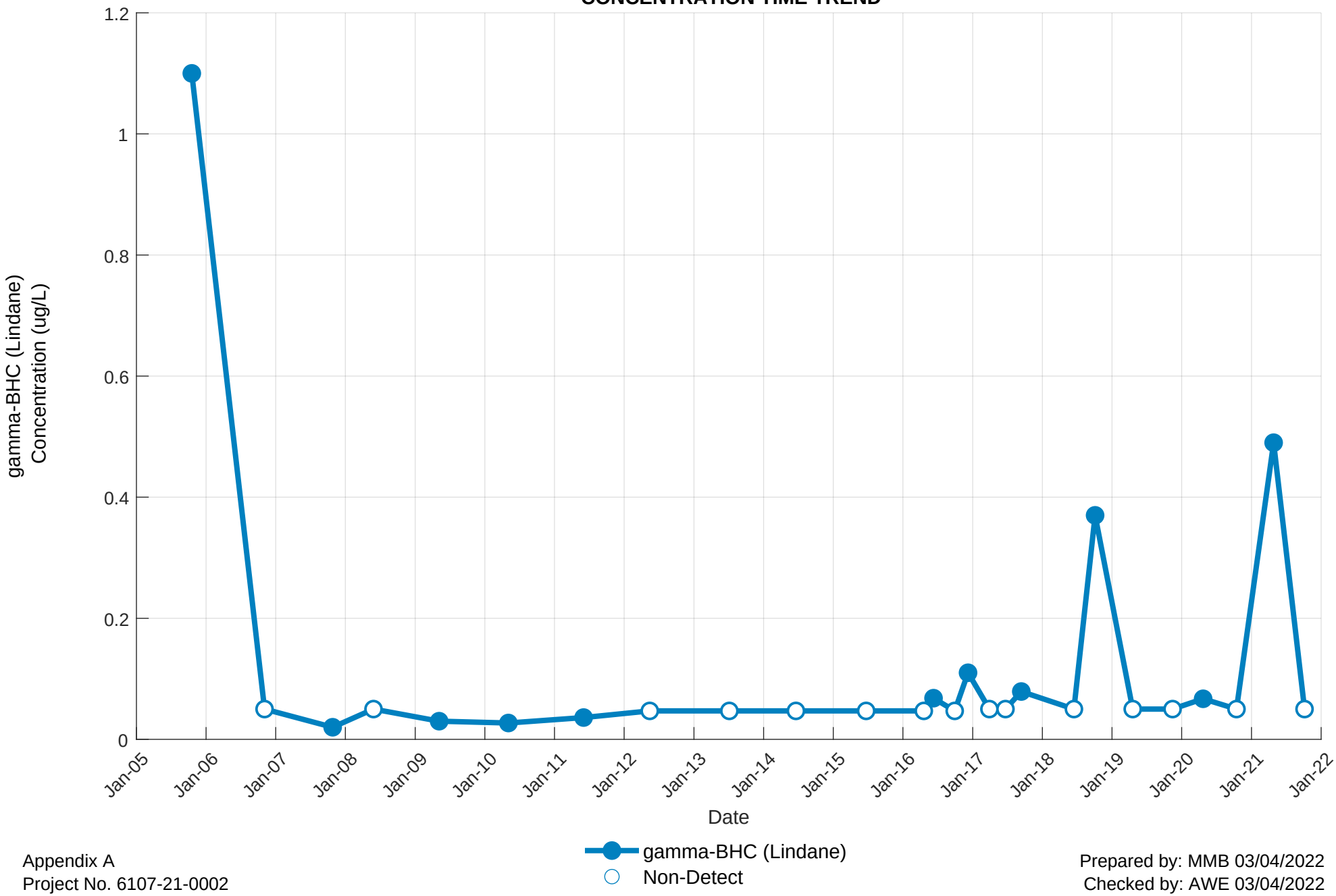
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-20A
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND



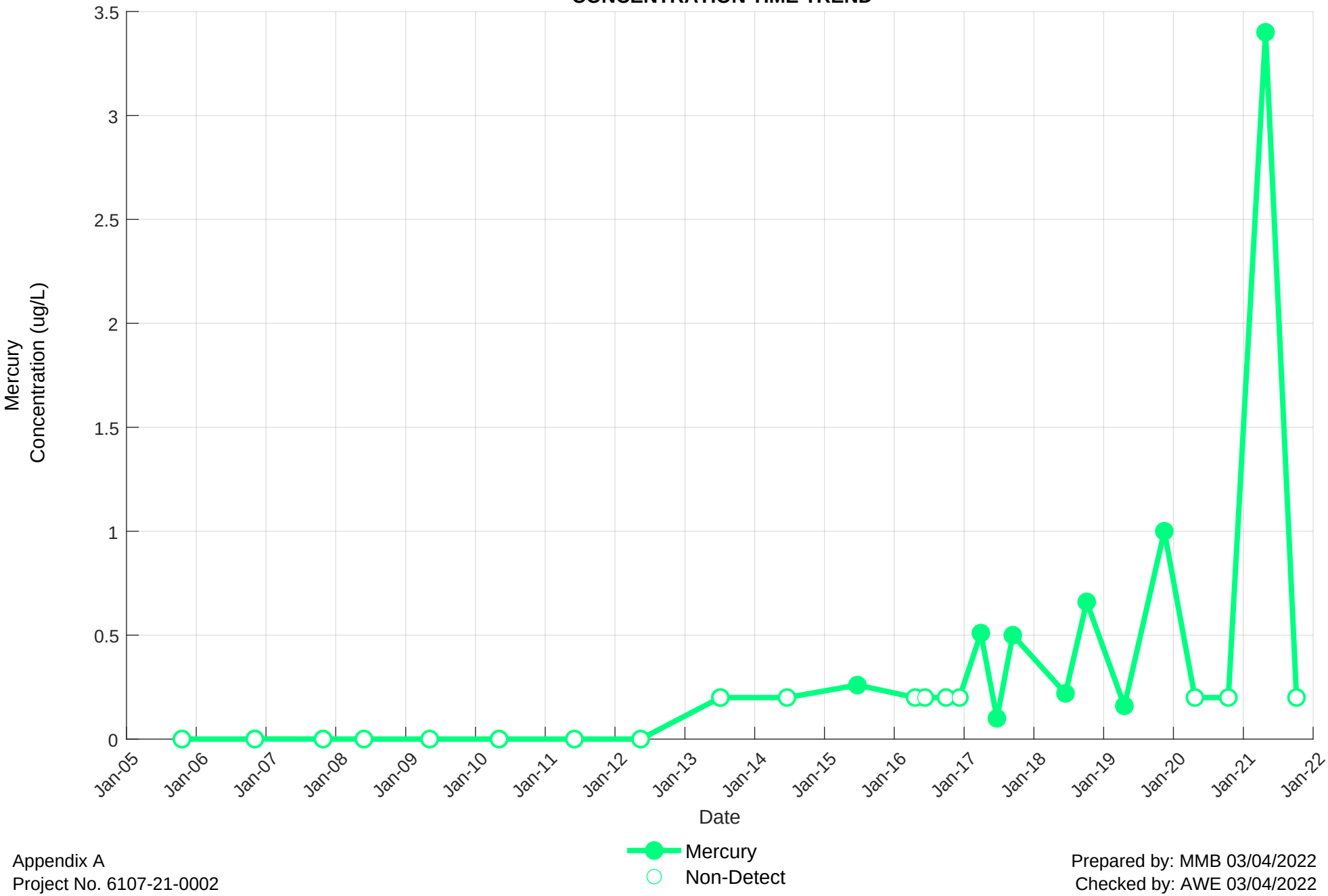
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-20A
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



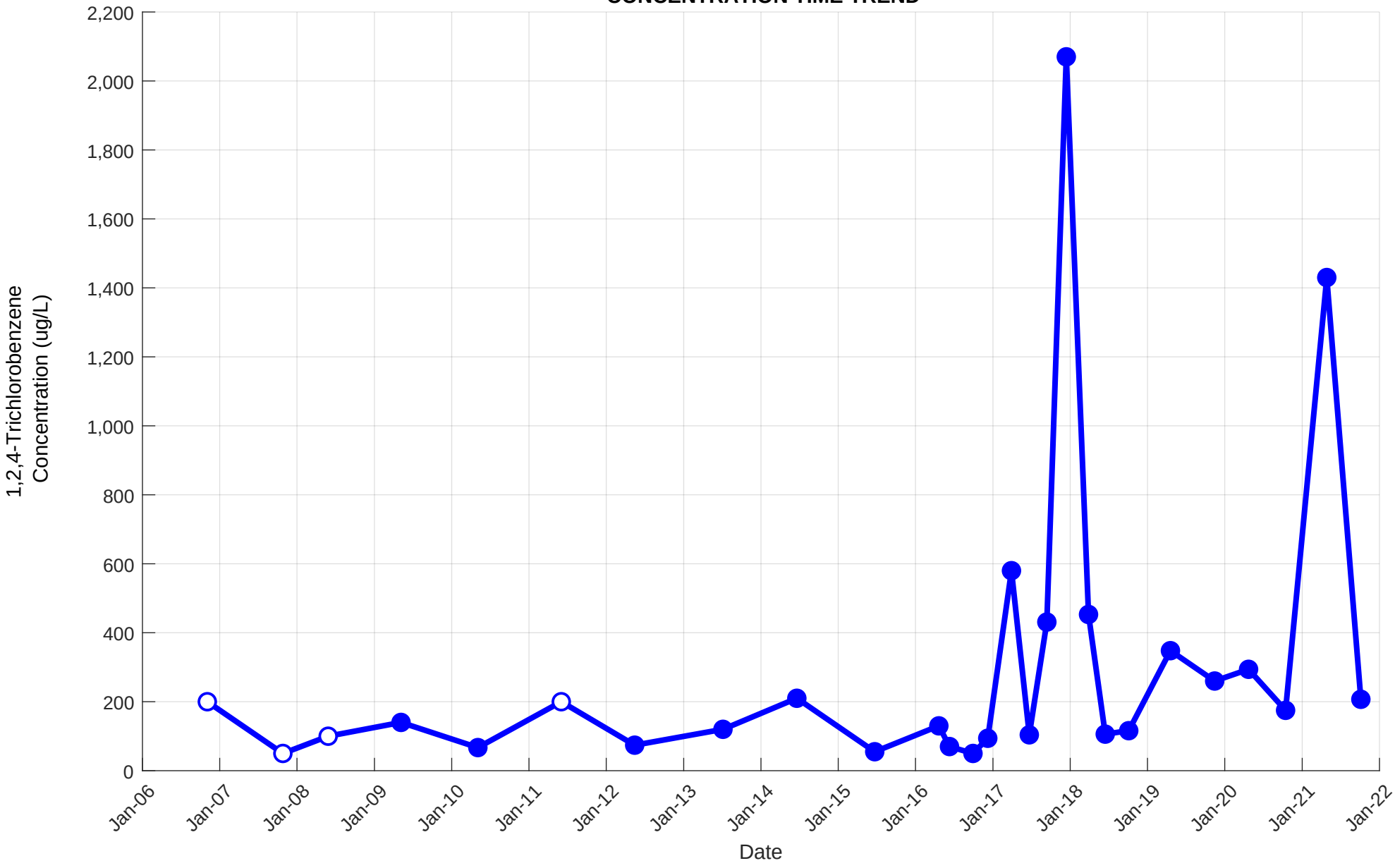
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-20A
MERCURY
CONCENTRATION TIME TREND



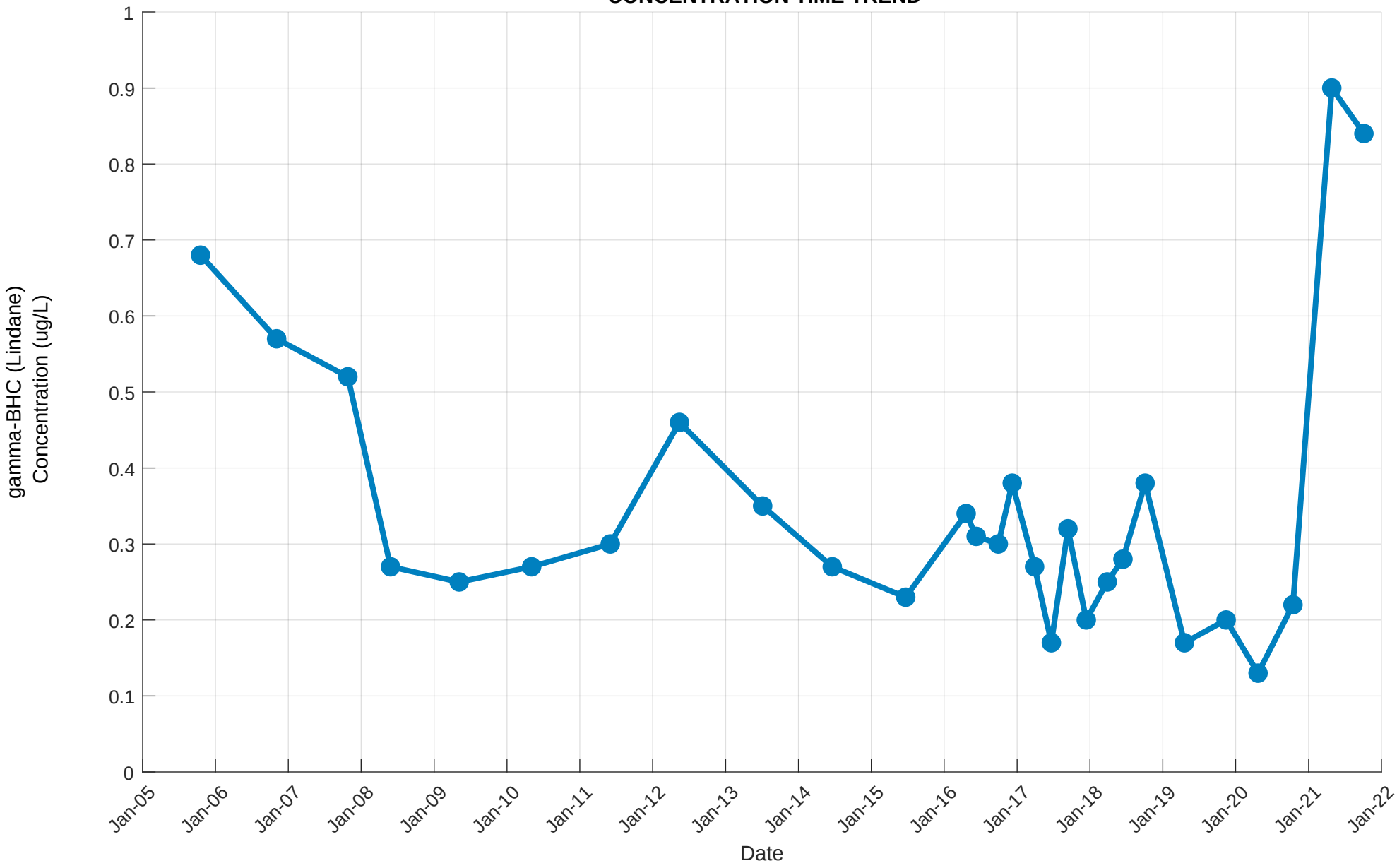
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-20B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

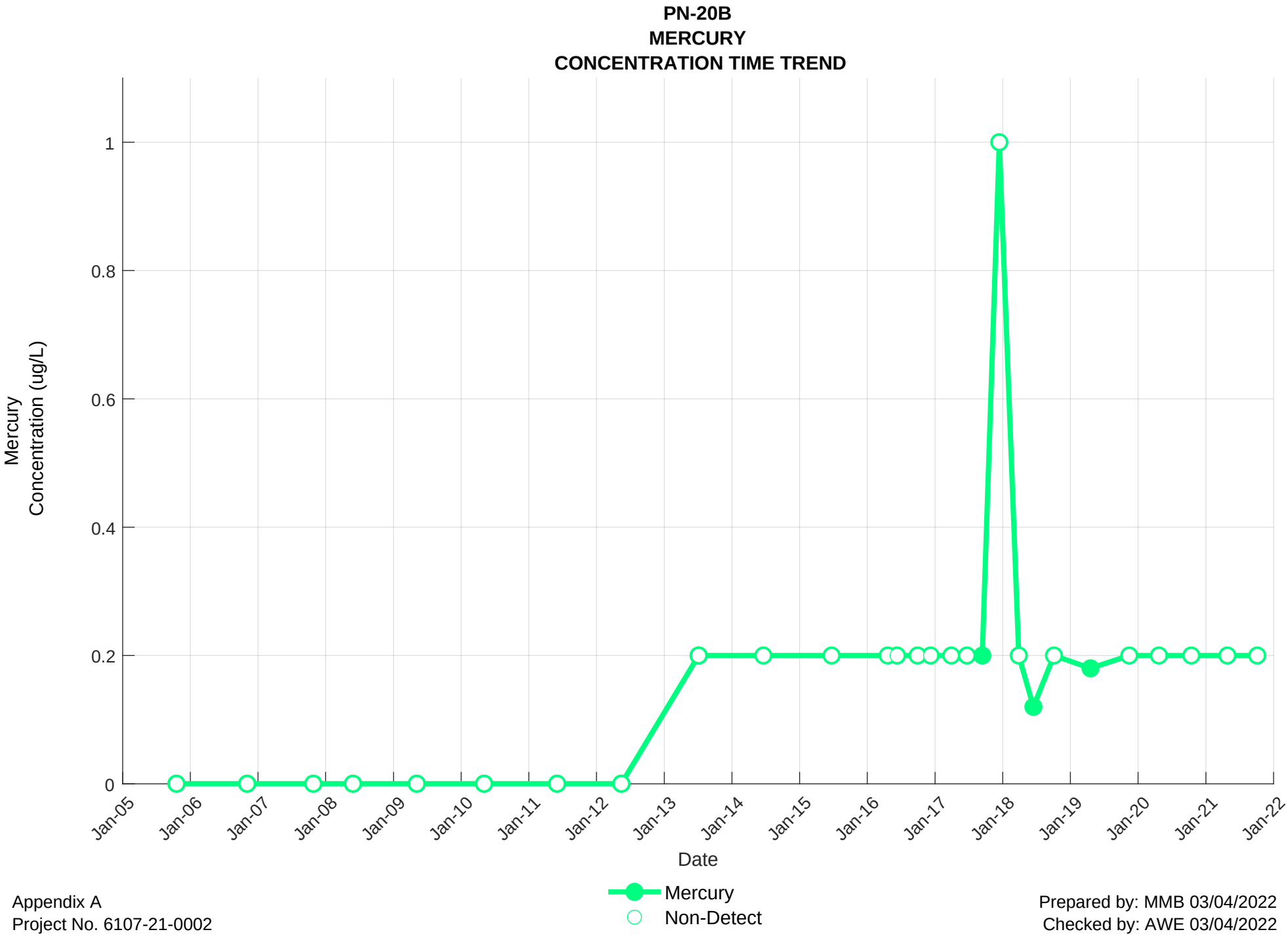


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-20B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND

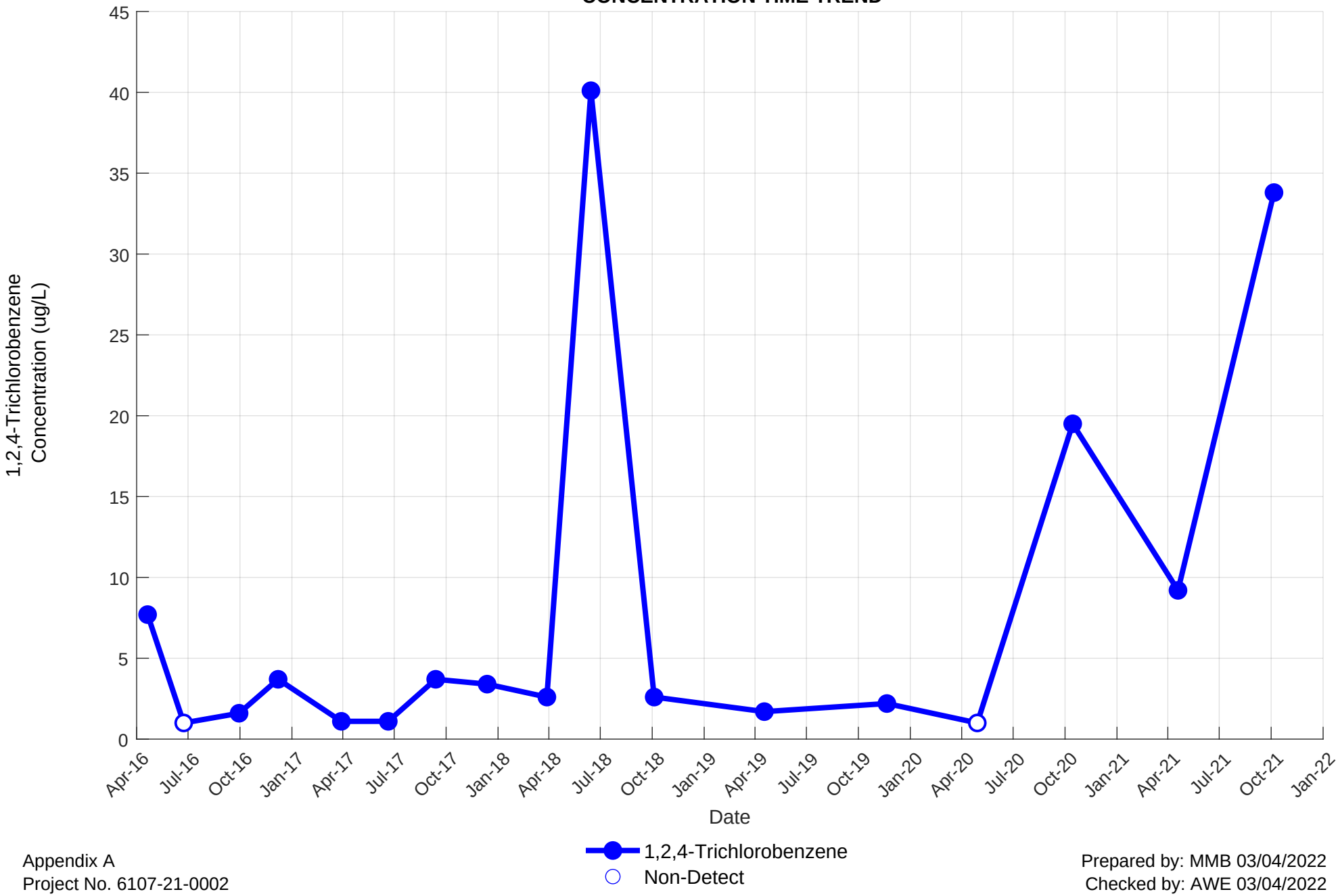


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



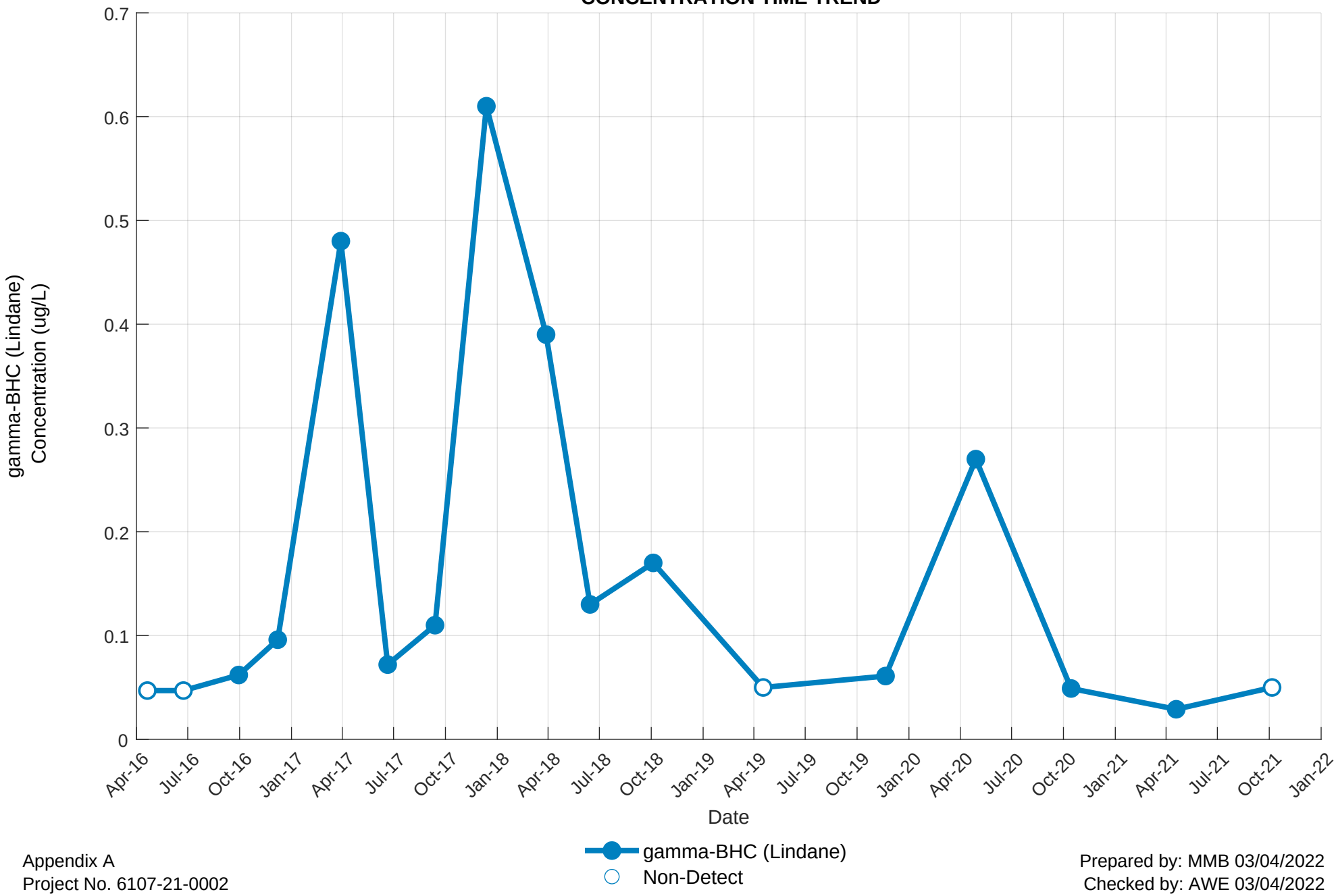
Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-24B
1,2,4-TRICHLOROBENZENE
CONCENTRATION TIME TREND

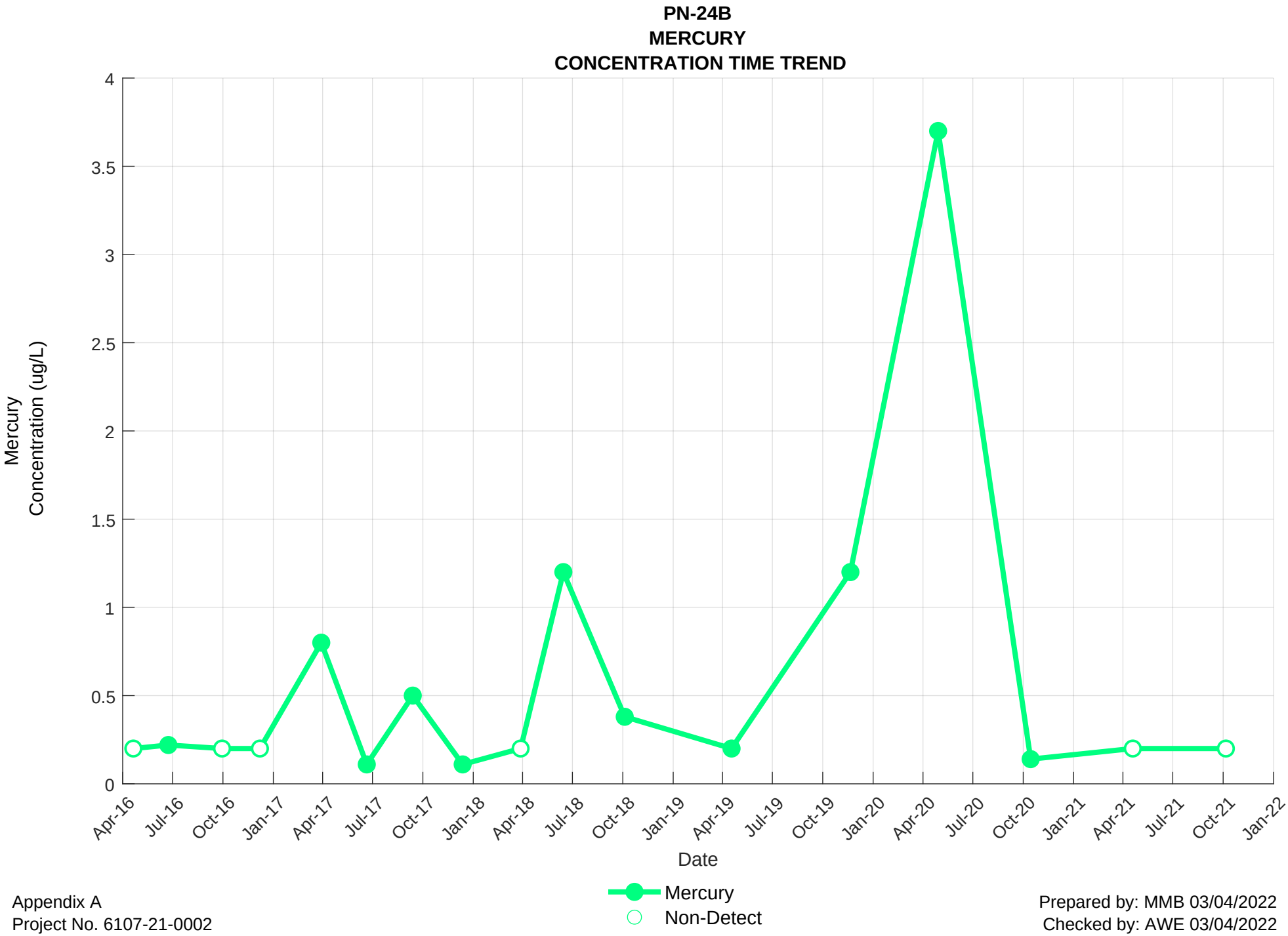


Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022

PN-24B
GAMMA-BHC (LINDANE)
CONCENTRATION TIME TREND



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022



Prepared by: MMB 03/04/2022
Checked by: AWE 03/04/2022