Appendices

Appendix A

Well Construction Logs

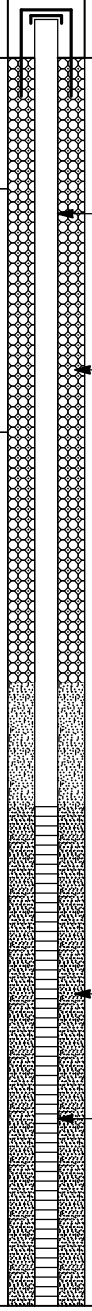
Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M03B

Date(s) Drilled	**9/14/15 - 9/15/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**4.58**
NJDEP Permit	**E201510332**	Sampling Method(s)	**Macrocore**	TOC Elevation	**7.02**
Location	**N 311800.792 E 209355.789**	Borehole Completion	**F05 C Corral**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
	0				0.0' - 0.3' Asphalt	
4					0.3' - 2.1' SILTY SAND, black (10YR 2/1), moist, wet at 1.5', fine to very coarse sand, poorly sorted, trace gravel, 1/8", poorly sorted	A
	2				2.1' - 3.0' SILT, very dark gray (10YR 3/1), moist, soft, some CLAY, medium plasticity	AB
2						
	4				3.0' - 5.0' No Recovery	
0						
					5.0' - 6.0' SILT, very dark brown (10YR 2/2), moist, soft, some clay, medium plasticity, becomes peaty at 5.3', micaceous	
	6				6.0' - 6.7' SILTY SAND, dark gray (5Y 4/1), wet, soft, little to no plasticity	B
-2					6.7' - 7.75' SAND, gray (10YR 5/1), wet, medium to coarse, poorly sorted, mostly rounded quartz grains, few angular black minerals	
	8				7.75' - 10.0' No Recovery	
-4						
	10				10.0' - 12.1' SAND, gray (10YR 5/1), saturated, medium to fine, trace coarse grains, mostly rounded to subrounded quartz grains	
-6						
	12				12.1' - 15.0' No Recovery	
-8						
	14					
-10					15.0' - 17.0' SAND, dark reddish brown (5YR 3/4), saturated, coarse to very coarse, few medium grains, poorly sorted, trace silt, trace-few subrounded gravel	
	16					
-12					17.0' - 20.0' No Recovery	
	18					
-14						
	20					

FIELD NOTES AND WELL DETAILS



Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 F05-M03B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M03B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
-16	20				20.0' - 21.7' SAND, dark reddish brown (5YR 3/4), saturated, coarse to very coarse, few medium grains, poorly sorted, trace silt, trace-few subrounded gravel	BC		
-18	22				21.7' - 22.5' CLAY, very dark grey (10YR 3/1), moist, soft, medium plasticity			
-20	24				22.5' - 25.0' No recovery			
-22	26							
-24	28							
-26	30							
-28	32							
-30	34							
-32	36							
-34	38							
-36	40							
-38	42							
	44							

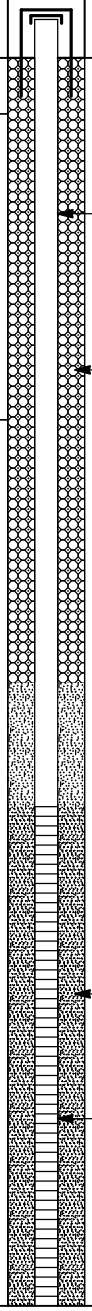
Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M04B

Date(s) Drilled	**9/18/15 - 9/18/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**4.55**
NJDEP Permit	**E201510333**	Sampling Method(s)	**Macrocore**	TOC Elevation	**6.54**
Location	**N 312061.881 E 209658.214**	Borehole Completion	**F05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
4	0				0.0' - 0.9' FILL, topsoil, dark brown (7.5YR 3/2), moist	A
					0.9' - 3.2' SANDY SILT, brown (7.5YR 4/3), moist, soft, low plasticity, fine sand, well sorted	AB
2	2					
					3.2' - 5.0' No Recovery	
0	4					
					5.0' - 5.8' SANDY SILT, same as above, saturated, soupy	
-2	6				5.8' - 7.0' SILTY SAND, very dark grayish brown (10YR 3/2), wet, medium grain, well sorted, soft	B
					7.0' - 8.9' SAND, dark grayish brown (2.5Y 4/2), wet, medium to coarse, well sorted, mostly subrounded quartz grains	
-4	8					
					8.9' - 10.0' No Recovery	
-6	10				10.0' - 13.0' SAND, dark gray to black (10YR 4/1 to 10YR 2/1), saturated, fining upwards sequence, medium grain to 11', coarse to very coarse with trace subrounded gravel (1/8-1/4") to 13'	
-8	12					
					13.0' - 15.0' No Recovery	
-10	14					
					15.0' - 16.5' SILTY SAND with GRAVEL, gray (2.5Y 5/1), saturated, fine to very coarse sand, poorly sorted, gravel is angular to rounded 1/16-1/4" also poorly sorted, very dense	
-12	16					
					16.5' - 20.0' No Recovery	
-14	18					
	20					

FIELD NOTES AND WELL DETAILS



Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 F05-M04B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M04B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
-16	20				20.0' - 21.5' SILTY SAND with GRAVEL, same as above, saturated, more very coarse sand, more gravel than above			
-18	22				21.5' - 23.0' SILT, very dark grayish brown (2.5Y 3/2), moist, medium stiff, medium plasticity	BC		
-20	24				23.0' - 25.0' No Recovery			
-22	26							
-24	28							
-26	30							
-28	32							
-30	34							
-32	36							
-34	38							
-36	40							
-38	42							
	44							

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 F05-M04B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M05B

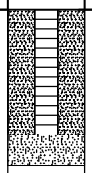
Date(s) Drilled	**9/18/15 - 9/18/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**4.44**
NJDEP Permit	**E201510334**	Sampling Method(s)	**Macrocore**	TOC Elevation	**6.09**
Location	**N 312058.338 E 209657.599**	Borehole Completion	**F05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit	FIELD NOTES AND WELL DETAILS
4	0						
	2						
2							2" PVC riser (1.5' ags - 12' bgs)
	4						
0							Bentonite grout (0'-10' bgs)
	6						
-2							
	8						
-4							
	10						
-6							
	12						
-8							
	14						
-10							Morie #1 filter sand (10'-22.5' bgs)
	16						
-12							2" PVC screen, 0.010" slot (12'-22' bgs)
	18						
-14							
	20						

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 F05-M05B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well F05-M05B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
-16	20							
-18	22							
-20	24							
-22	26							
-24	28							
-26	30							
-28	32							
-30	34							
-32	36							
-34	38							
-36	40							
-38	42							
	44							

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 F05-M05B

Project:
Project Location: Deepwater, NJ
Project Number: 60554934.18002

Log of Boring/Well F05-M06B

Date(s) Drilled	**5/22/18 - 5/23/18**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley]**	Surface Elevation	**4.99**
NJDEP Permit	**E201804305**	Sampling Method(s)	**Macrocore**	TOC Elevation	**4.62**
Location	**N 312133.261 E 209256.785**	Borehole Completion	**Cement-Bentonite**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	GEOPHYSICAL	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0					0.0' - 0.7' ASPHALT			
4						0.7' - 2.2' FILL, SANDY SILT, dark brown (10YR 3/3), wet, fine sand, well sorted, brick and other trash			
	2					2.2' - 2.5' SILTY CLAY, very dark gray (10YR 3/1), soft, wet, trace fine to very fine sand			
2						2.5' - 5.0' No Recovery			2" PVC
	4								Cement/Bentonite Grout
0						5.0' - 6.0' SILTY CLAY, very dark gray (10YR 3/1), soft, wet, trace fine to very fine sand			
	6					6.0' - 7.6' SAND, gray (5Y 5/1), saturated, fine to medium, well sorted, little silt, soft			
-2									
	8					7.6' - 8.6' SAND, olive brown (10Y 4/3), saturated, fine to medium, little coarse, poorly sorted			
-4						8.6' - 10.0' No Recovery			
	10					10.0' - 12.0' SAND, olive brown (2.5Y 4/3), saturated, mostly fine to medium, trace coarse to very coarse, poorly sorted			
-6									
	12					12.0' - 12.3' SILTY SAND, olive brown (2.5Y 4/3), saturated, few angular 1/2" gravels			
-8						12.3' - 15.0' No Recovery			#00 Filter Sand
	14								
-10						15.0' - 17.8' SAND AND GRAVEL, yellowish brown 10 YR5/4, reddish brown 10R4/6, wet, coarse sand to gravel, poorly sorted			#1 Filter Sand
	16								2" .010 Slotted PVC Screen
-12									
	18					17.8' - 20.0' No Recovery			
-14									
	20								

Project:
Project Location: Deepwater, NJ
Project Number: 60554934.18002

Log of Boring/Well F05-M06B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	GEOPHYSICAL	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	20					20.0' - 24.2' SAND AND GRAVEL, yellowish brown 10 YR5/4, wet, coarse sand to gravel, poorly sorted			
-16									
	22								
-18									
	24								
						24.2' - 24.8' CLAY, very dark gray (10YR 3/1), soft, wet, little silt			
-20						24.8' - 25.0 No Recovery, End of Boring			
	26								
-22									
	28								
-24									
	30								
-26									
	32								
-28									
	34								
-30									
	36								
-32									
	38								
-34									
	40								
-36									
	42								
-38									
	44								

Report: DUPONT_ENV3 GEOPHYS 20-24 CC; File: DUPONT CWKS_3-9_2018.GPJ; 10/30/2018 F05-M06B

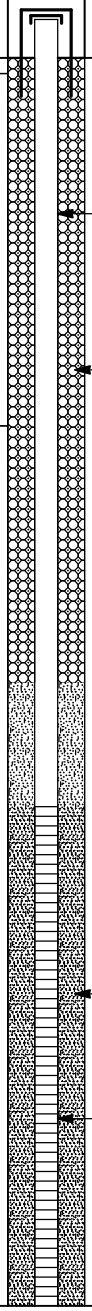
Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well G05-M08B

Date(s) Drilled	**9/17/15 - 9/17/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**3.44**
NJDEP Permit	**E201510335**	Sampling Method(s)	**Macrocore**	TOC Elevation	**5.21**
Location	**N 312004.304 E 209942.252**	Borehole Completion	**G05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
	0				0.0' - 0.25' FILL, SAND, dark yellowish brown (10YR 4/6), fine to medium, well sorted	A
					0.25' - 2.2' SILT, very dark grayish brown (10YR 3/2), moist, medium stiff to soft, low plasticity, some SAND to 1ft	AB
2	2					
					2.2' - 5.0' No Recovery	AB
0	4					
-2					5.0' - 5.9' SILT, same as above, wet	AB
	6				5.9' - 7.5' SAND, black (10YR 2/1), saturated, medium dense, medium grain, trace coarse	B
-4	8				7.5' - 10.0' No Recovery	B
-6	10				10.0' - 13.3' SAND, very dark gray (10YR 3/1), wet to saturated, medium to fine, well sorted, mostly quartz grains, little mica and dark minerals	B
-8	12					
-10	14				13.3' - 15.0' No Recovery	B
-12	16				15.0' - 19.2' SILTY SAND, very dark gray (10YR 3/1), color changes to black (10YR 2/1) at 16.7', saturated, fine to very coarse, poorly sorted, soft and loose, almost soupy	B
-14	18					
-16	20				19.2' - 20.0' No Recovery	B

FIELD NOTES AND WELL DETAILS



Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 G05-M08B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well G05-M08B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
	20				20.0' - 21.2' SILTY SAND, same as above, medium to very coarse, little to trace rounded gravels, 1/4-1/8"			
-18	22				21.2' - 22.4' CLAYEY SILT, very dark gray (10YR 3/1), moist, soft, low plasticity, micaceous			
					22.4' - 25.0' No Recovery	BC		
-20	24							
-22	26							
-24	28							
-26	30							
-28	32							
-30	34							
-32	36							
-34	38							
-36	40							
-38	42							
-40	44							

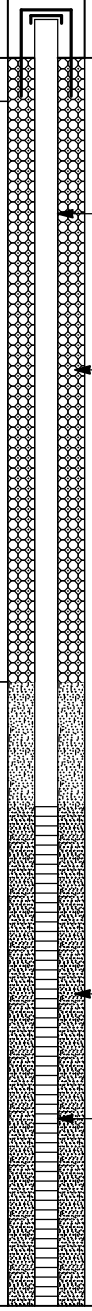
Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well H05-M03B

Date(s) Drilled	**9/15/15 - 9/16/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**4.89**
NJDEP Permit	**E201510336**	Sampling Method(s)	**Macrocore**	TOC Elevation	**6.75**
Location	**N 311982.679 E 210084.939**	Borehole Completion	**H05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
	0				0.0' - 0.7' SAND, dark yellowish brown (10YR 4/6), medium to fine, well sorted fill material, few angular gravel	A
4					0.7' - 2.5' SILT, black (10YR 2/1), moist, soft, some CLAY, high plasticity, trace organics, pieces of bark	AB
	2					
2					2.5' - 5.0' No Recovery	
	4					
0					5.0' - 7.2' SILT, black (10YR 2/1) to 6.5', then color change to olive gray (5Y 4/2), moist, soft, some CLAY, high plasticity, trace organics, trace medium sand starting after 6.5'	
	6					
-2					7.2' - 10.0' No Recovery	
	8					
-4						
	10				10.0' - 13.2' SAND, dark grayish brown (10YR 4/2), wet to saturated, fine to medium, well sorted, mostly subrounded quartz grains, trace mica	B
-6						
	12					
-8					13.2' - 15.0' No Recovery	
	14					
-10					15.0' - 17.9' SAND, very dark gray (2.5Y 3/1), wet to saturated, fine to medium, well sorted, becomes gravelly at 16.8', 1/8-1/4" rounded gravels, well sorted	
	16					
-12						
	18				17.9' - 20.0' No recovery	
-14						
	20					

FIELD NOTES AND WELL DETAILS



Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 H05-M03B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well H05-M03B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
	20				20.0' - 21.0' SAND, very dark gray (2.5Y 3/1), wet to saturated, some gravel, rounded, well sorted, 1/8-1/4"			
-16					21.0' - 23.1' SILT, very dark gray (10YR 3/1), wet, medium stiff, medium plasticity, micaceous, trace sand towards bottom	BC		
	22							
-18					23.1' - 25.0' No Recovery			
	24							
-20								
	26							
-22								
	28							
-24								
	30							
-26								
	32							
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	34							
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-34								
	40							
-36								
	42							
-38								
	44							

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 H05-M03B

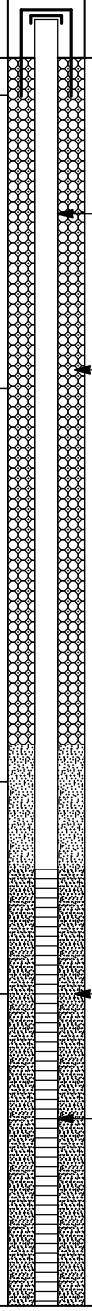
Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well H05-M04B

Date(s) Drilled	**9/17/15 - 9/17/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**4.00**
NJDEP Permit	**E201510337**	Sampling Method(s)	**Macrocore**	TOC Elevation	**5.66**
Location	**N 311937.397 E 210252.737**	Borehole Completion	**H05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
4	0				0.0' - 0.6' SAND, dark yellowish brown (10YR 4/6), moist to dry, medium to coarse, well sorted, fill	A
					0.6' - 3.2' SILT, dark grayish brown (10YR 4/2), soft to medium stiff, moist, low to medium plasticity, some medium sand from 1.5-1.9, little organics in last 1/2' of core, roots	AB
2	2					
					3.5' - 5.0' No Recovery	
0	4					
					5.0' - 5.3' SILT, same as above	
					5.3' - 8.4' SAND, gray (10YR 5/1), wet, fine to medium, well sorted, mostly rounded to subrounded quartz grains, some coarse from 7.5-8.2', loose to medium dense, saturated	B
-2	6					
-4	8					
					8.4' - 10.0' No Recovery	
-6	10				10.0' - 11.6' SAND, same as above	
-8	12				11.6' - 13.4' SILT, very dark gray (10YR 3/1), wet, soft, low plasticity, trace organics	Middle B Silt
					13.4' - 15.0' No Recovery	
-10	14					
					15.0' - 18.0' SAND, dark gray (2.5Y 4/1), saturated, fine, well sorted, loose	
-12	16					
-14	18				18.0' - 20.0' No Recovery	
-16	20					

FIELD NOTES AND WELL DETAILS



Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 H05-M04B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well H05-M04B

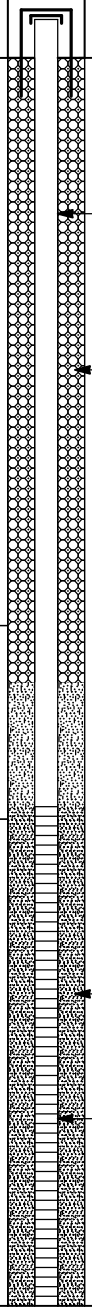
Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
-16	20				20.0' - 22.2' SILTY SAND, very dark grayish brown (10YR 3/2), wet to saturated, soft, no plasticity, fine to very fine grained, well sorted	B		
-18	22				22.2' - 25.0' No Recovery			
-20	24							
-22	26							
-24	28							
-26	30							
-28	32							
-30	34							
-32	36							
-34	38							
-36	40							
-38	42							
-40	44							

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

Log of Boring / Well I05-M03B

Date(s) Drilled	**9/16/15 - 9/16/15**	Geologist	**K. Davis**	Checked By	
Drilling Method	**HSA**	Boring Diameter	**6"**	Total Depth of Borehole	**25.0 feet**
Drill Rig Type	**Geoprobe**	Contractor [Operator]	**Summit [Bob Kimley, George Anderson]**	Surface Elevation	**5.85**
NJDEP Permit	**E201510338**	Sampling Method(s)	**Macrocore**	TOC Elevation	**7.65**
Location	**N 311927.520 E 210445.954**	Borehole Completion	**I05 Salem Canal**		

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit
	0				0.0' - 0.8' SAND, brownish yellow (10YR 6/6)	A
					0.8' - 1.7' SANDY SILT, very dark gray (10YR 3/1), fill, dry and crumbly, medium to coarse sand, trace gravel	A
4	2				1.7' - 3.0' SANDY SILT, very dark gray (10YR 3/1), wet to moist, medium stiff to soft, fine to very fine sand, low plasticity	A
					3.0' - 5.0' No Recovery	A
2	4					A
					5.0' - 5.6' SANDY SILT, very dark gray (10YR 3/1), wet to moist, medium stiff to soft, fine to very fine sand, low plasticity	A
0	6				5.6' - 9.1' SAND, dark gray to very dark gray (10YR 4/1 to 3/1), wet to saturated, medium dense, medium to fine grain, well sorted, mostly quartz grains	A
-2	8					A
					9.1' - 9.7' SILT, dark brown (10YR 3/3), dry/crumbly, no plasticity, medium dense, micaceous	AB
-4	10				9.7' - 10.0' No Recovery	AB
					10.0' - 12.2' SILT, very dark grayish brown (2.5Y 3/2), moist to wet, medium stiff, trace very fine sand	AB
-6	12					AB
					12.2' - 14.0' SANDY SILT, dark gray (2.5Y 4/1), moist, dense, crumbles, no plasticity, very fine sand	B
-8	14				14.0' - 15.0' No Recovery	B
					15.0' - 16.0' SANDY SILT, dark gray (2.5Y 4/1), wet, dense, low plasticity, very fine sand	B
-10	16				16.0' - 18.6' SAND, very dark gray (2.5Y 3/1), wet to saturated, medium to fine, very well sorted, surounded quartz, trace mica and dark minerals, loose	B
-12	18					B
					18.6' - 19.0' SAND AND GRAVEL, reddish brown (5YR 4/3), saturated, medium to very coarse, poorly sorted, subrounded quartz sand grains, rounded gravel	B
					19.0' - 20.0' No Recovery	B
-14	20					B



FIELD NOTES AND WELL DETAILS

- 2" PVC riser (1.8' ags - 12' bgs)
- Bentonite grout (0'-10' bgs)
- Morie #1 filter sand (10'-22.5' bgs)
- 2" PVC screen, 0.010" slot (12'-22' bgs)

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 I05-M03B

Project: Salem Canal Supplemental GW Investigation
Project Location: Deepwater, NJ
Project Number:

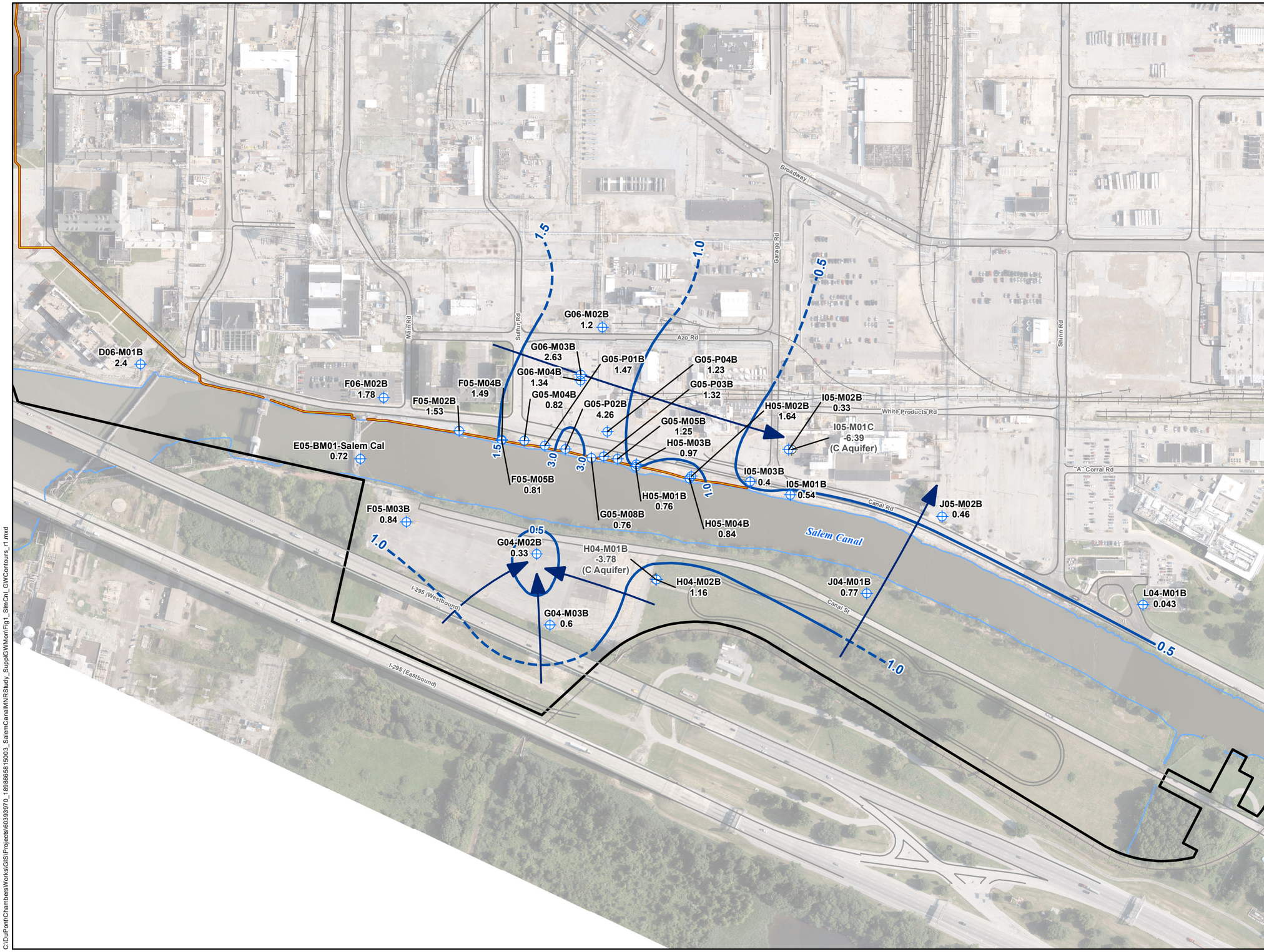
Log of Boring / Well I05-M03B

Elevation feet	Depth, feet	SAMPLES: Recovery, ft / ft	SAMPLES: PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Geologic Unit		FIELD NOTES AND WELL DETAILS
	20				20.0' - 21.6' SAND with GRAVEL, same as above, gray towards top, reddish brown towards the bottom, angular to rounded, 1/16-1/8", saturated			
-16	22				21.6' - 22.2' SILTY CLAY, soft, medium plasticity	BC		
					22.2' - 23.4' SAND, dark gray (2.5Y 4/1), wet, fine to medium, well sorted, some SILT, micaceous			
-18	24				23.4' - 25.0' No Recovery			
-20	26							
-22	28							
-24	30							
-26	32							
-28	34							
-30	36							
-32	38							
-34	40							
-36	42							
-38	44							

Report: DUPONT_ENV2 NO BLOWS; File: DUPONT CWKS_1_27_16_CHECKEDOUT_KD.GPJ; 4/3/2016 I05-M03B

Appendix B

Groundwater Elevation Maps



Legend

- B AQUIFER WELL
- C AQUIFER WELL
- GROUNDWATER CONTOUR
- GROUNDWATER CONTOUR (ESTIMATED)
- GROUNDWATER FLOW DIRECTION
- SHEET PILE BARRIER
- EDGE OF PAVEMENT/CURB
- RAILROAD
- CHEMOURS PROPERTY BOUNDARY
- SHORELINE

NOTES:
WATER LEVEL MEASUREMENTS TAKEN 11/9/2015.

AERIAL INFORMATION:
2014 AXIS GEOSPATIAL LLC.
MAP PROJECTION:
NAD83 NEW JERSEY STATE PLANE FT

N
W E
S

0 150 300 600
Feet
1 inch = 300 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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SALEM CANAL B-AQUIFER GROUNDWATER LEVEL CONTOURS - NOVEMBER 2015

CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18986658.15003	PROJECT NUMBER: 60393970
DESIGNED BY: CLM	DATE: 4/18/2016
DRAWN BY: CAD	FIGURE NUMBER: 1
DATA QUALITY CHECK BY: SAM	

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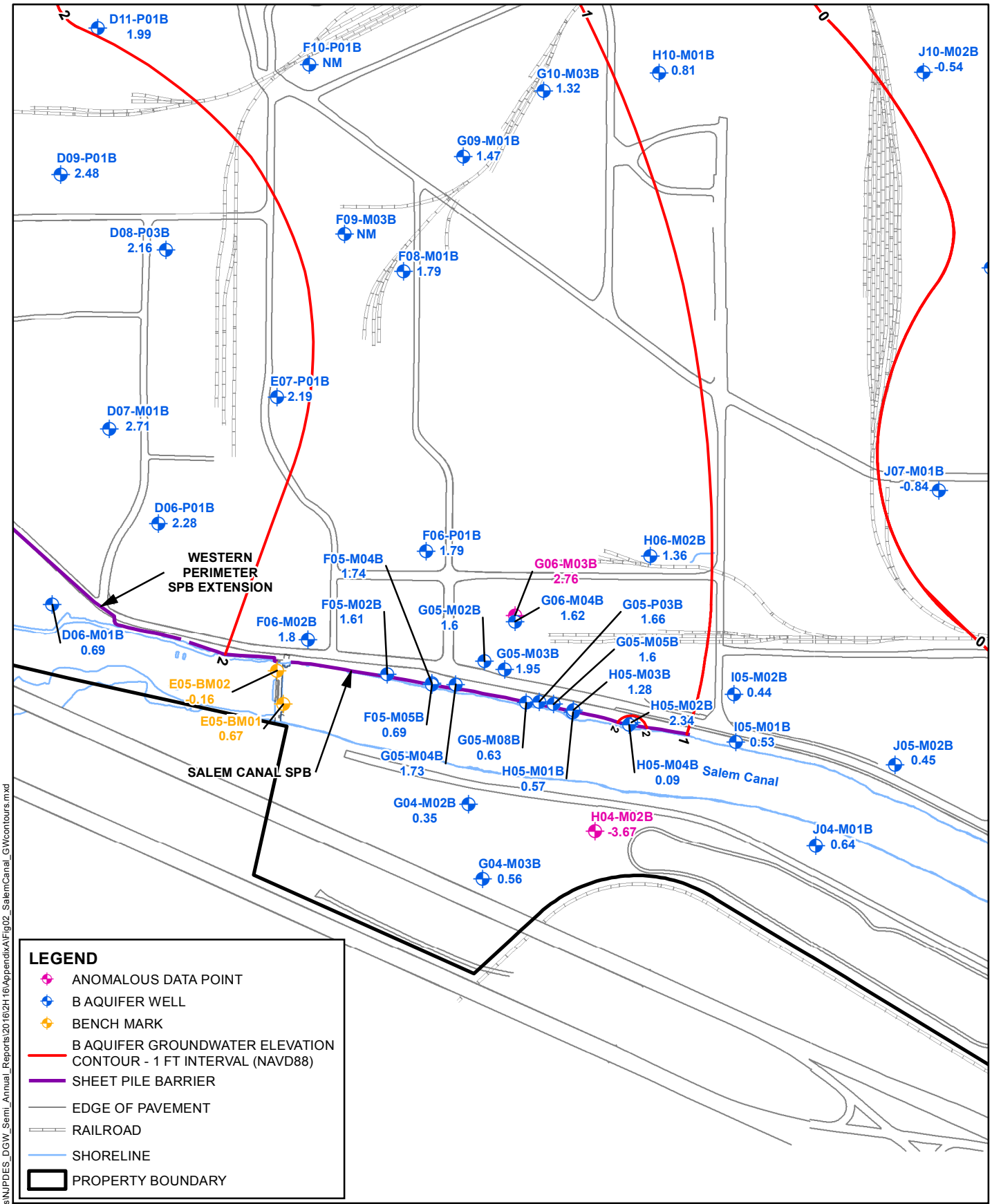

N
W E
S

0 200 400
Feet
1 inch = 400 feet

MAP FORMATTED FOR "A" (8.5" X 11") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

TASK NUMBER:	17002
DESIGNED BY:	P. CHEN
DRAWN BY:	C. DUFFY
DATA QUALITY CHECK BY:	S. MORGAN

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Newark, DE 19713

GROUNDWATER ELEVATION CONTOUR MAP - B AQUIFER - SALEM CANAL OCTOBER 27, 2016

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2016
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

PROJECT NUMBER:	60532795
DATE:	4/10/2017
FIGURE NUMBER:	2

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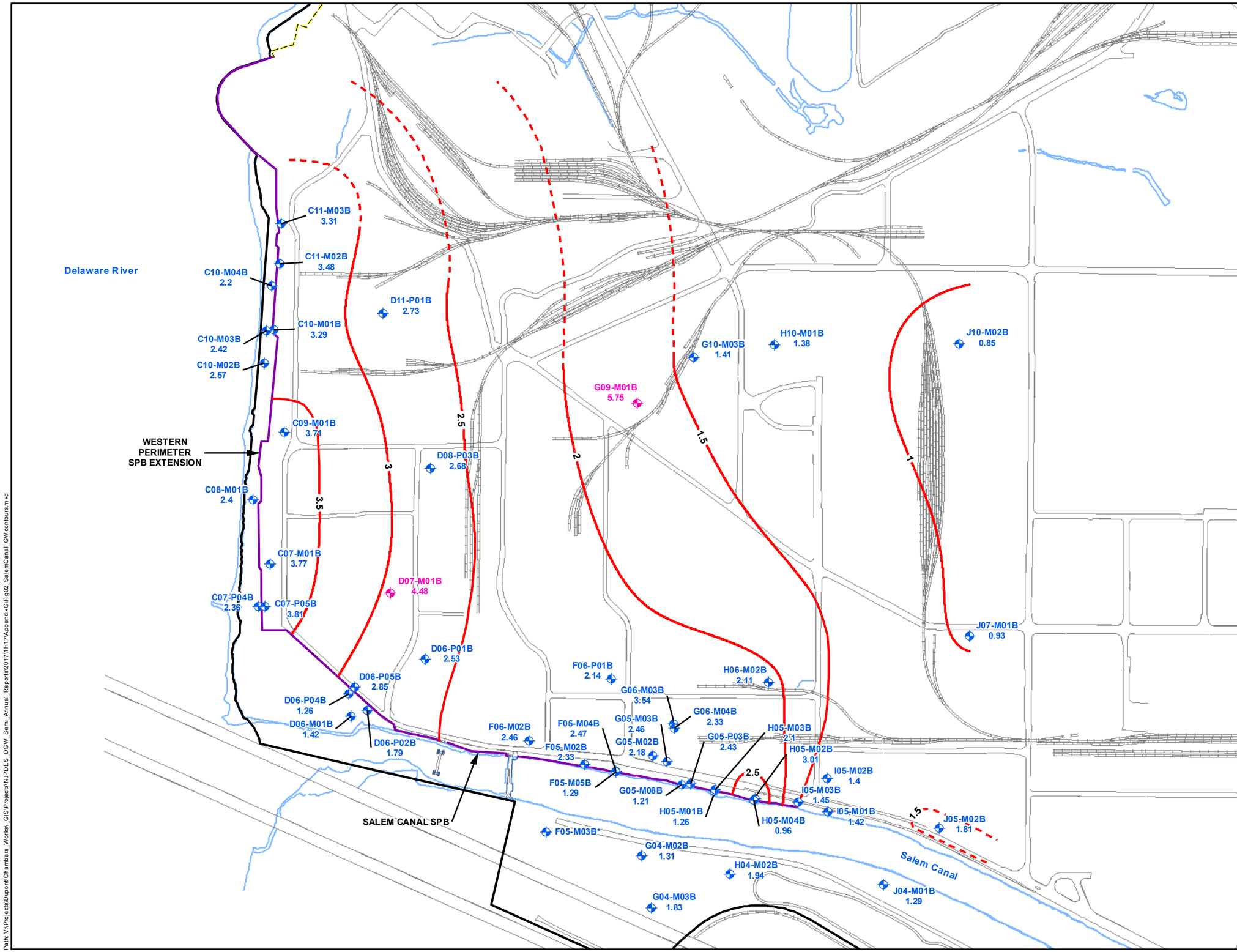


LEGEND

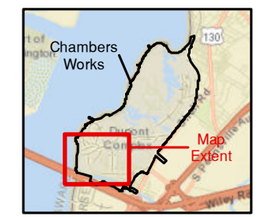
- B AQUIFER WELL
- ANOMALOUS DATA POINT
- B AQUIFER GROUNDWATER ELEVATION CONTOUR - 0.5 FT INTERVAL (NAVD88)
- SHEET PILE BARRIER
- WESTERN PERIMETER SHEET PILE BARRIER EXTENSION (PROPOSED)
- EDGE OF PAVEMENT
- RAILROAD
- SHORELINE
- PROPERTY BOUNDARY

Notes:

Anomalous data points were not used in contouring

* = Well is tidally influenced - Not used in contouring

Map Projection: NAD83 NJ State Plane feet



N
W E
S

0 200 400 800

Feet

1 inch = 400 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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GROUNDWATER ELEVATION CONTOUR MAP - B AQUIFER MAY 2017

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2017
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 17002	PROJECT NUMBER: 60532795
DESIGNED BY: S.MORGAN	DATE: 10/26/2017
DRAWN BY: M.LAYTON	FIGURE NUMBER: 2
DATA QUALITY CHECK BY: P.CHEN	

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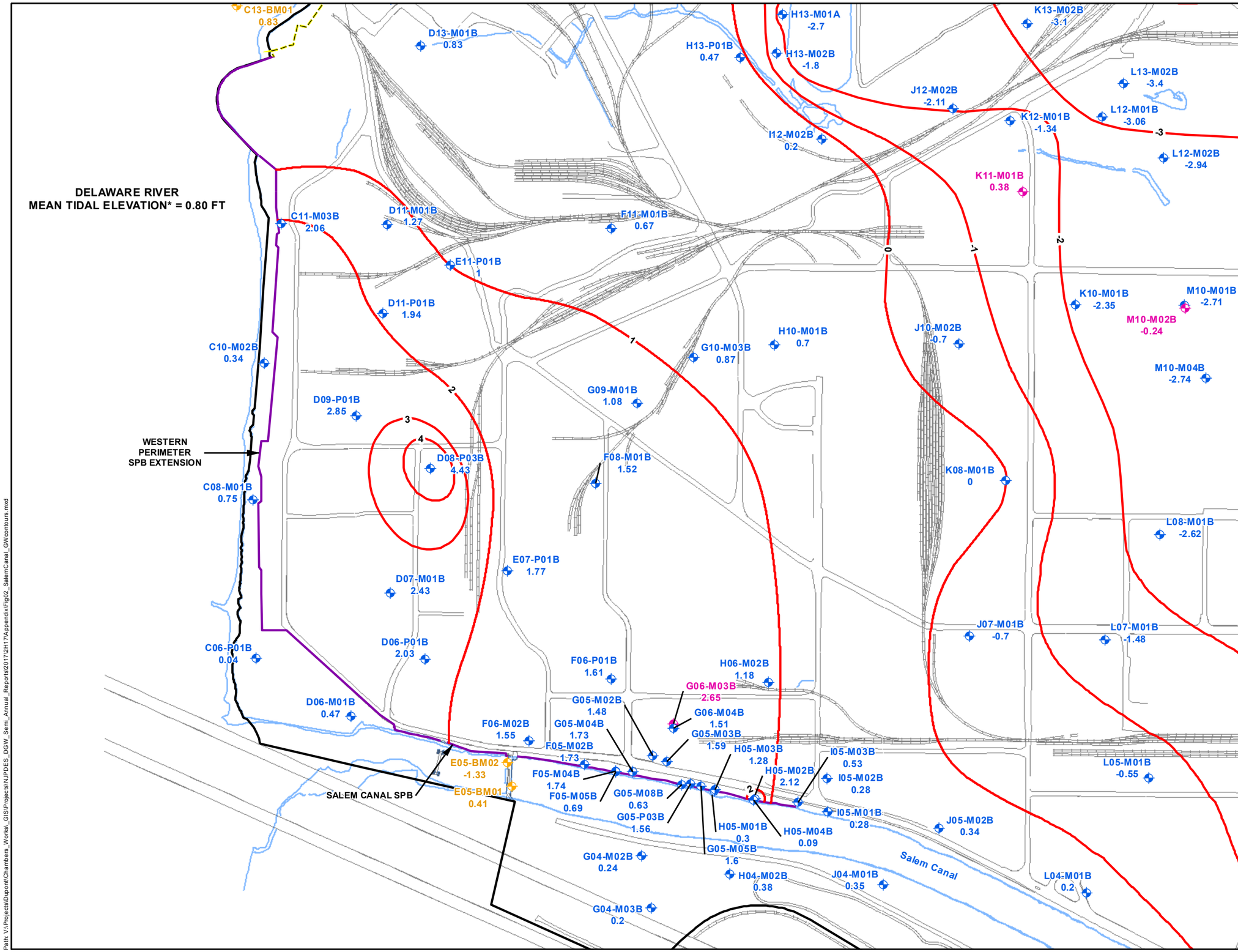


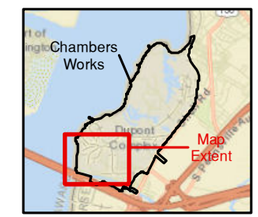
LEGEND

- B AQUIFER WELL
- ANOMALOUS DATA POINT
- B AQUIFER GROUNDWATER ELEVATION CONTOUR - 1 FT INTERVAL (NAVD88)
- SHEET PILE BARRIER
- WESTERN PERIMETER SHEET PILE BARRIER EXTENSION
- EDGE OF PAVEMENT
- RAILROAD
- SHORELINE
- PROPERTY BOUNDARY

Notes:

Anomalous data points were not used in contouring

Map Projection: NAD83 NJ State Plane feet



N W E S

0 200 400 800

Feet

1 inch = 400 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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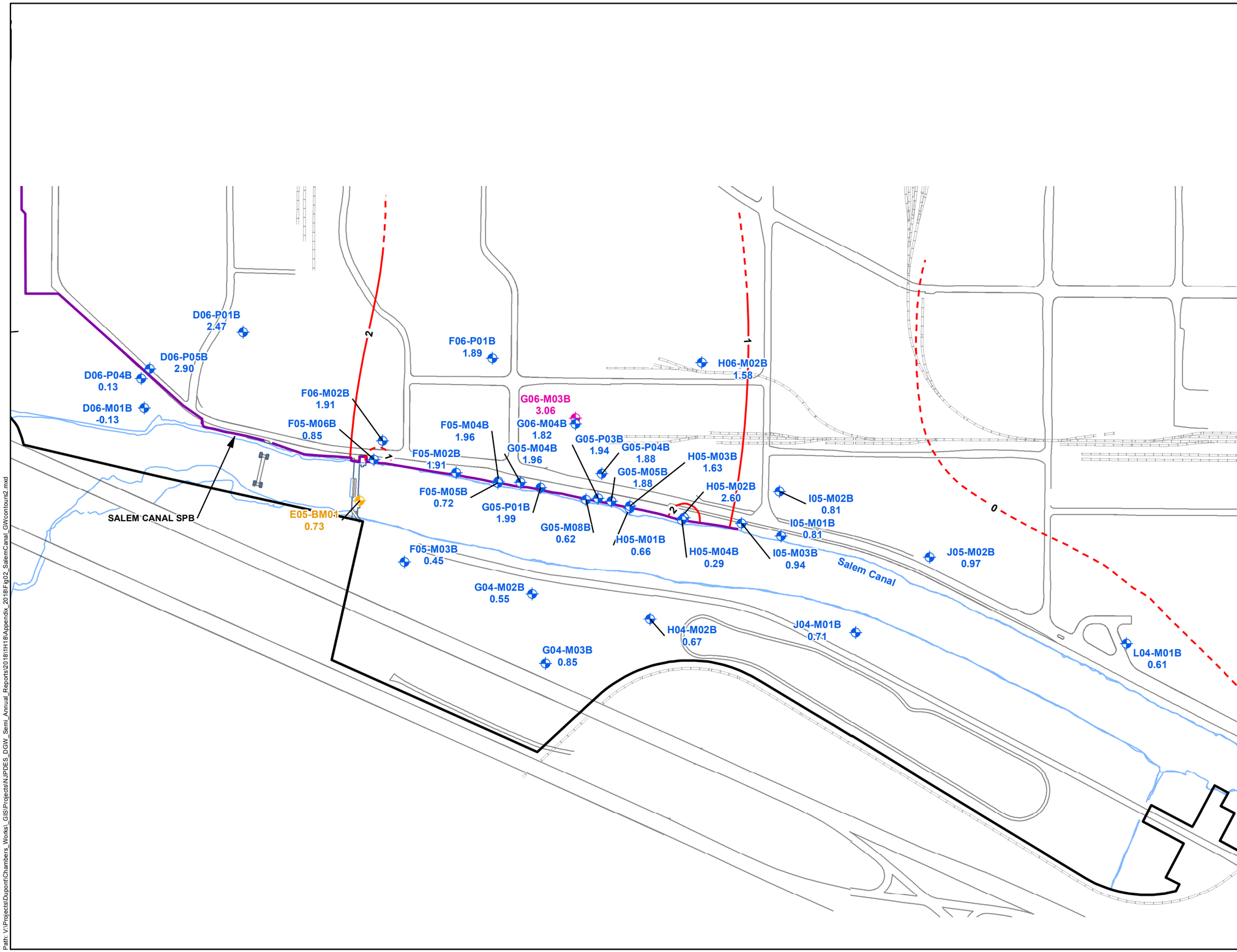
GROUNDWATER ELEVATION CONTOUR MAP - B AQUIFER OCTOBER 2017

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2017
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18002	PROJECT NUMBER: 60554934
DESIGNED BY: P.CHEN	DATE: 4/9/2018
DRAWN BY: M.LAYTON	FIGURE NUMBER: 2
DATA QUALITY CHECK BY: P.CHEN	

Path: V:\Projects\Dupont\Chambers_Works_GIS\Projects\NJPDES_DGW_Semi_Annual_Reports\2017\2H17\Appendix\Fig02_SalemCanal_GWcontours.mxd



LEGEND

- B AQUIFER WELL
- ANOMALOUS DATA POINT
- B AQUIFER GROUNDWATER ELEVATION CONTOUR - 1 FT INTERVAL (NAVD88, DASHED WHERE INFERRED)
- 0 FT CONTOUR SHAPE BASED ON PRIOR MONITORING EVENTS
- SHEET PILE BARRIER
- EDGE OF PAVEMENT
- RAILROAD
- SHORELINE
- PROPERTY BOUNDARY

Notes:

Anomalous data points were not used in contouring

Map Projection: NAD83 NJ State Plane feet

N
W E
S

0 150 300 600

Feet

1 inch = 300 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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GROUNDWATER ELEVATION CONTOUR MAP - B AQUIFER GW MEASUREMENTS COLLECTED AUGUST 1, 2018

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2017
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18002	PROJECT NUMBER: 60554934
DESIGNED BY: P.CHEN	DATE: 10/10/2018
DRAWN BY: MKL/BA	FIGURE NUMBER: 2
DATA QUALITY CHECK BY: P.CHEN	

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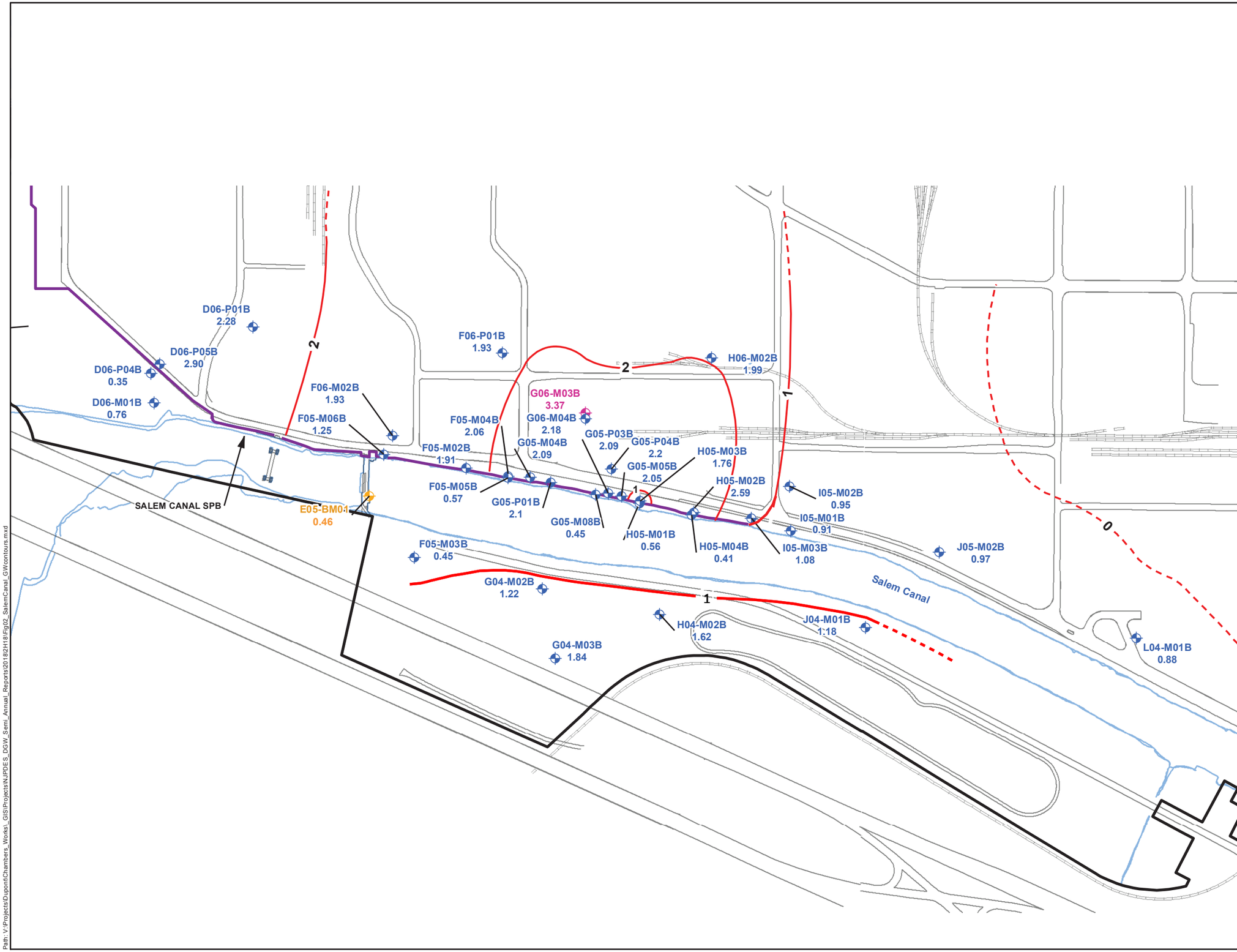

LEGEND

- B AQUIFER WELL
- ANOMALOUS DATA POINT
- B AQUIFER GROUNDWATER ELEVATION CONTOUR - 1 FT INTERVAL (NAVD88, DASHED WHERE INFERRED)
- 0 FT CONTOUR SHAPE BASED ON PRIOR MONITORING EVENTS
- SHEET PILE BARRIER
- EDGE OF PAVEMENT
- RAILROAD
- SHORELINE
- PROPERTY BOUNDARY

Notes:

Anomalous data points were not used in contouring

Map Projection: NAD83 NJ State Plane feet

0 150 300 600

Feet

1 inch = 300 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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GROUNDWATER ELEVATION CONTOUR MAP - B AQUIFER
GW MEASUREMENTS COLLECTED FEBRUARY 4, 2019

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2018
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18002	PROJECT NUMBER: 60593793
DESIGNED BY: B. AMMERMAN	DATE: 4/10/2019
DRAWN BY: B. AMMERMAN	FIGURE NUMBER: 2
DATA QUALITY CHECK BY: P.CHEN	

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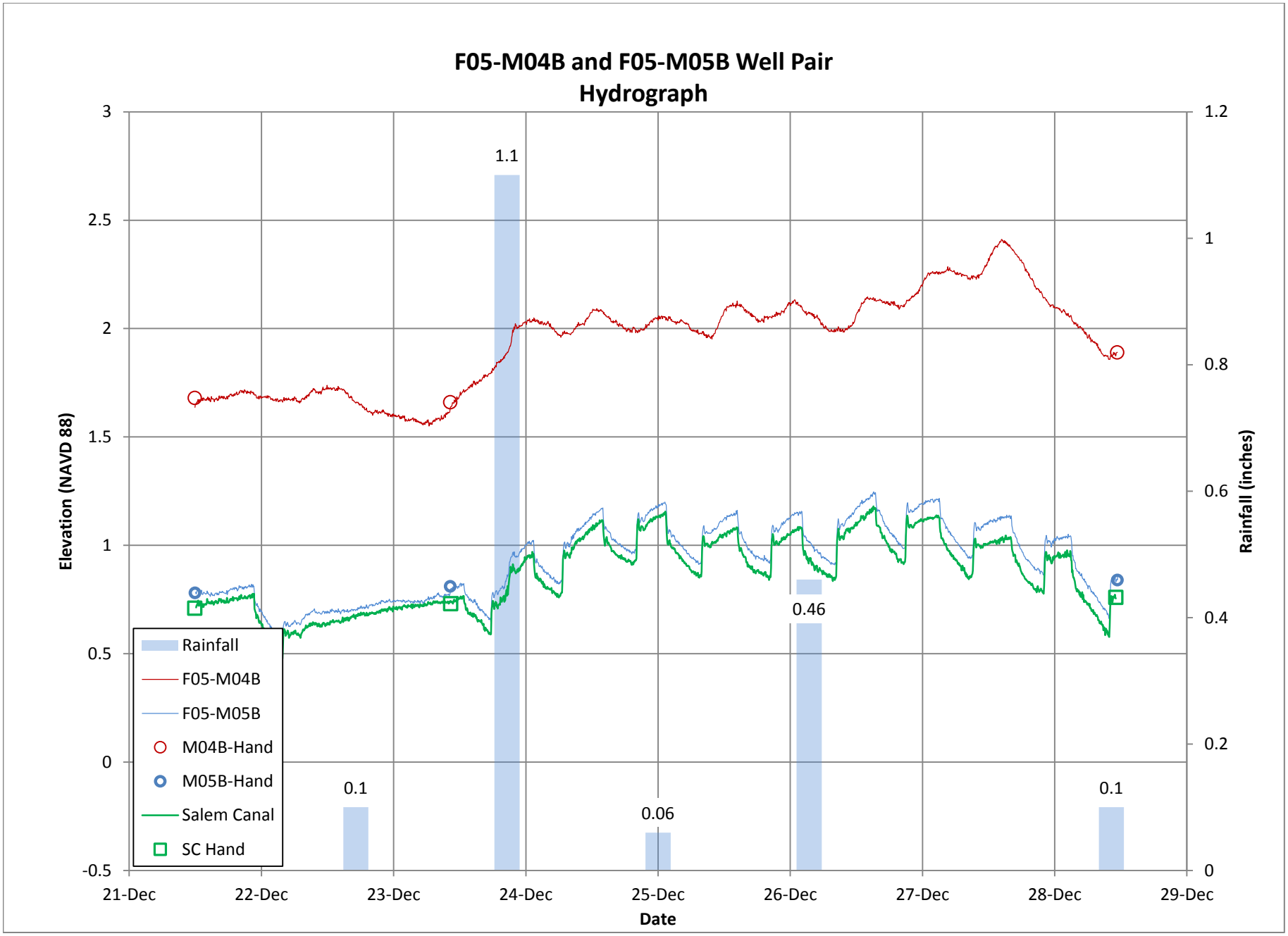
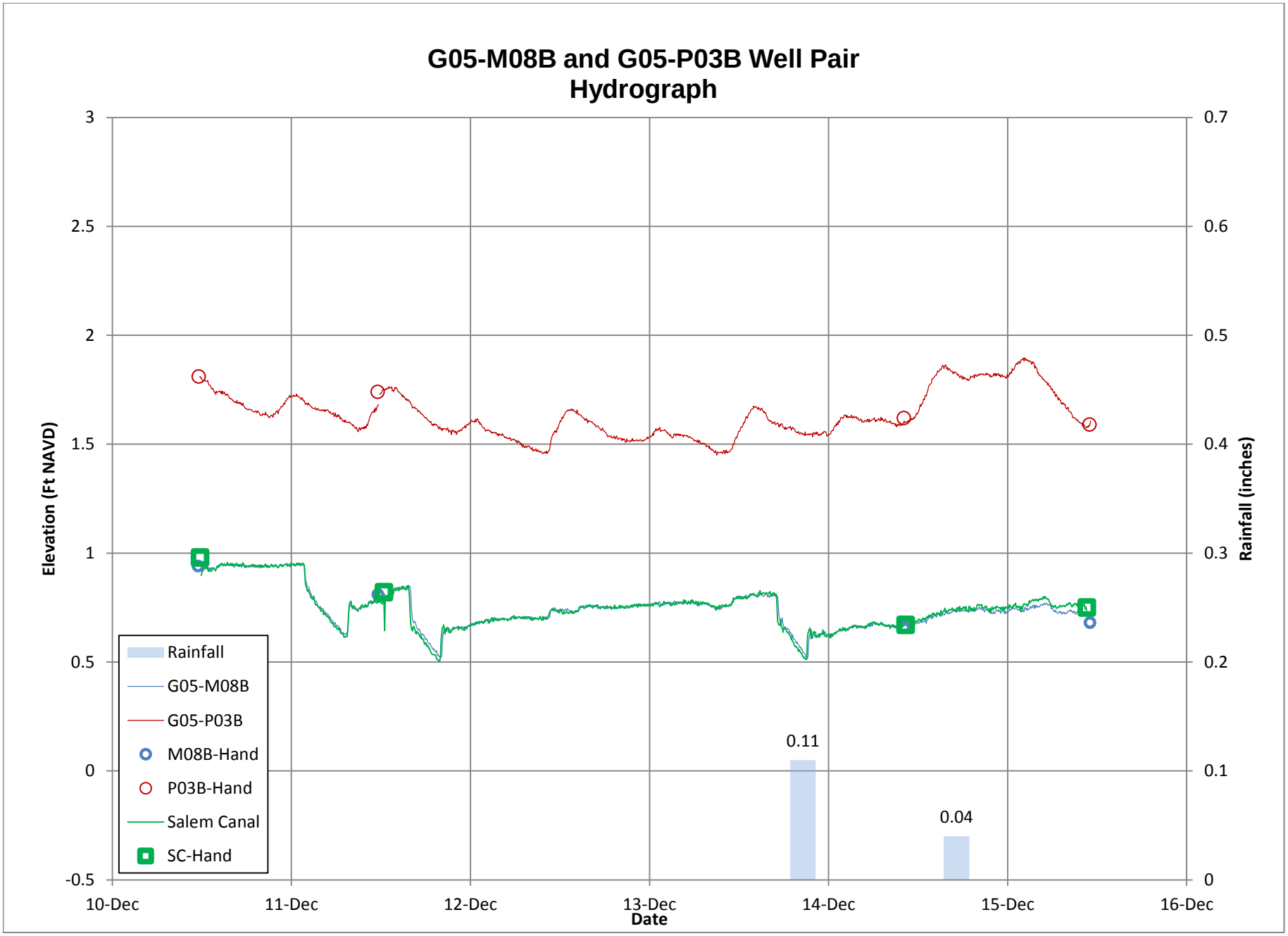
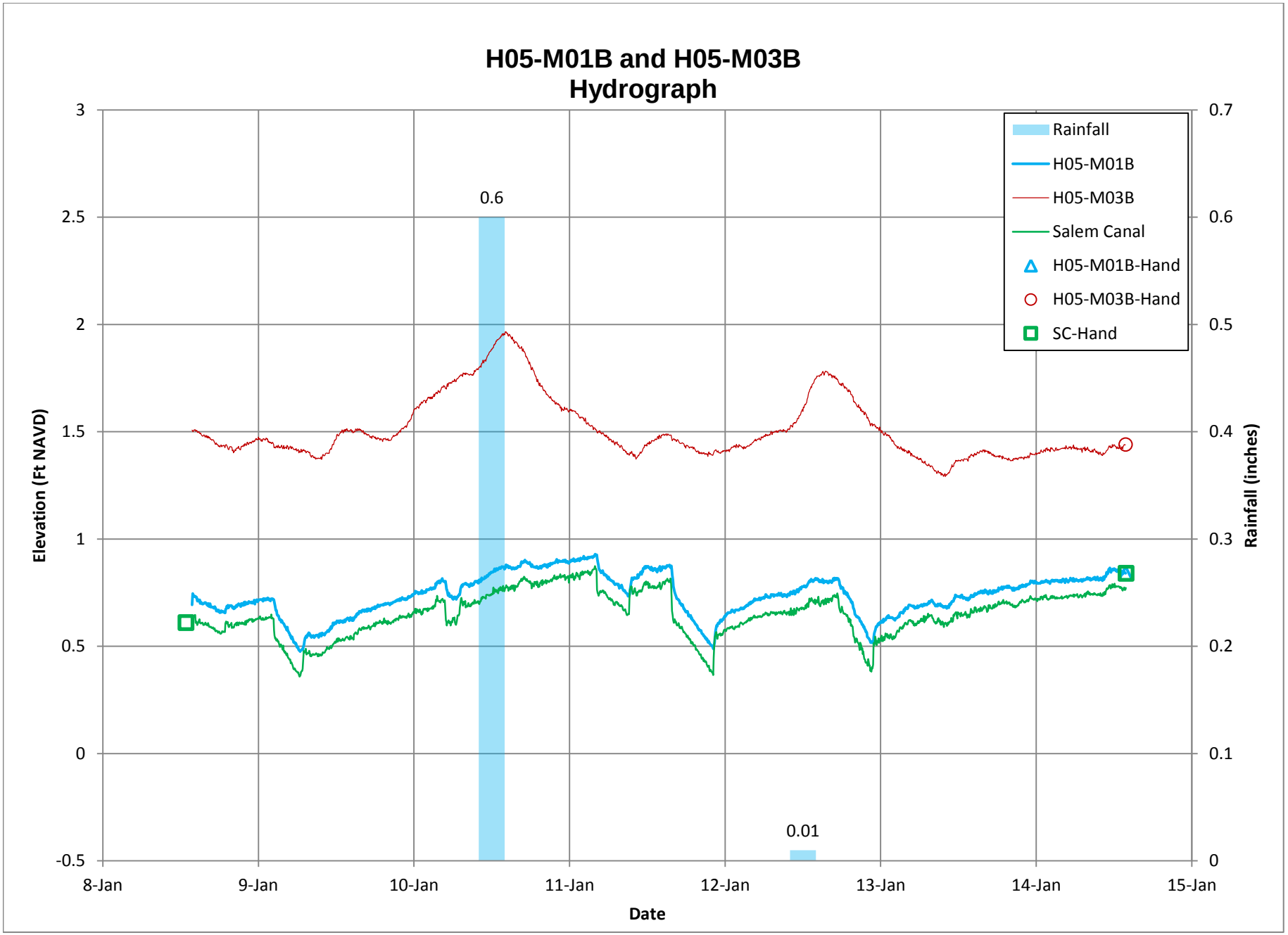
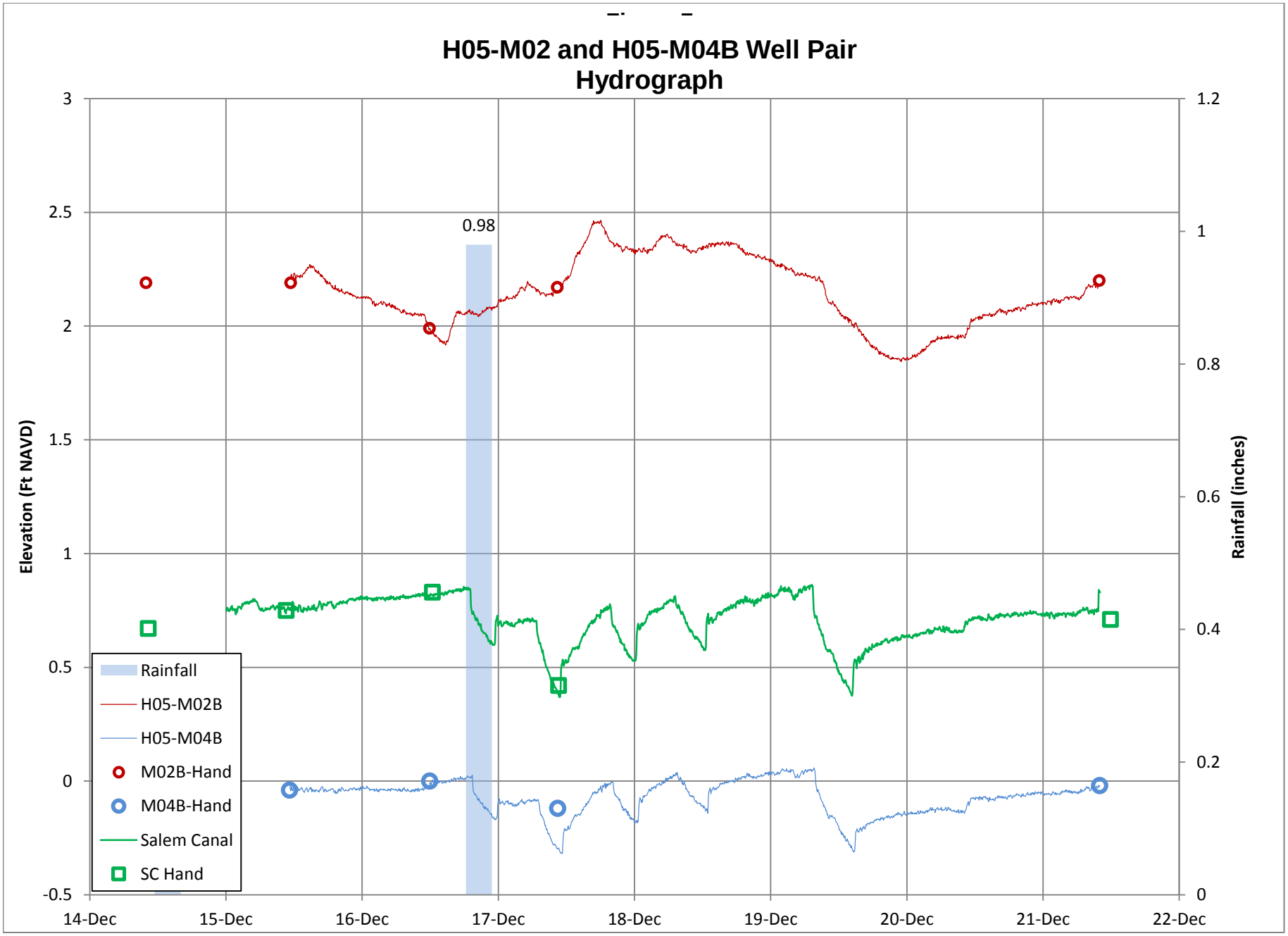
Appendix C

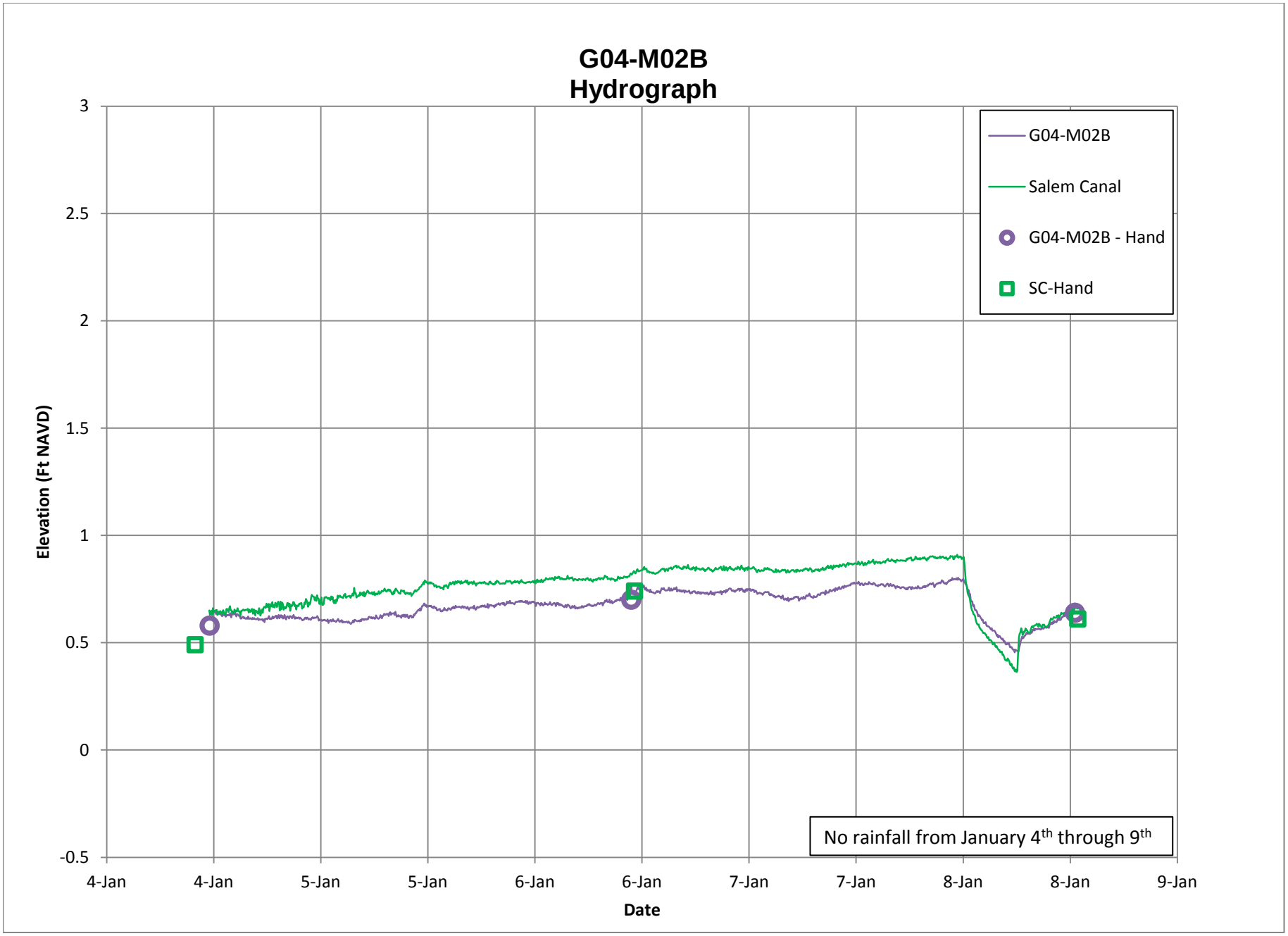
Time-Series Charts

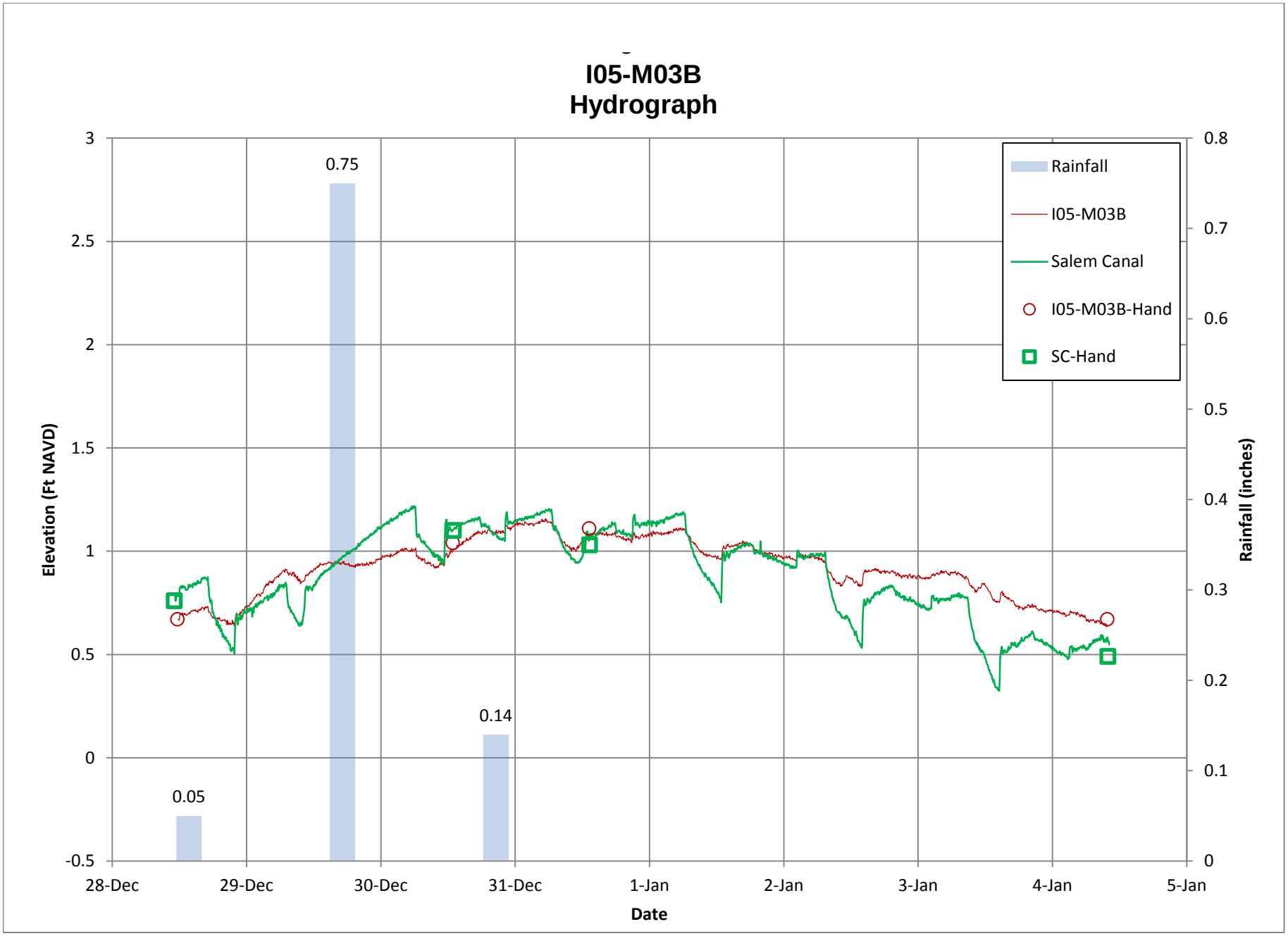

F05-M04B and F05-M05B Well Pair
Hydrograph
Elevation (NAVD 88)
Rainfall (inches)
Date
3
2.5
2
1.5
1
0.5
0
-0.5
1.2
1
0.8
0.6
0.4
0.2
0
21-Dec
22-Dec
23-Dec
24-Dec
25-Dec
26-Dec
27-Dec
28-Dec
29-Dec
1.1
0.1
0.06
0.46
0.1
Rainfall
F05-M04B
F05-M05B
M04B-Hand
M05B-Hand
Salem Canal
SC Hand


G05-M08B and G05-P03B Well Pair
Hydrograph
Elevation (Ft NAVD)
Rainfall (inches)
Date
3
2.5
2
1.5
1
0.5
0
-0.5
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
10-Dec
11-Dec
12-Dec
13-Dec
14-Dec
15-Dec
16-Dec
0.11
0.04
Rainfall
G05-M08B
G05-P03B
M08B-Hand
P03B-Hand
Salem Canal
SC-Hand


H05-M01B and H05-M03B
Hydrograph
Rainfall
H05-M01B
H05-M03B
Salem Canal
H05-M01B-Hand
H05-M03B-Hand
SC-Hand
0.6
0.01
Elevation (Ft NAVD)
Rainfall (inches)
Date
3
2.5
2
1.5
1
0.5
0
-0.5
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
8-Jan
9-Jan
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan

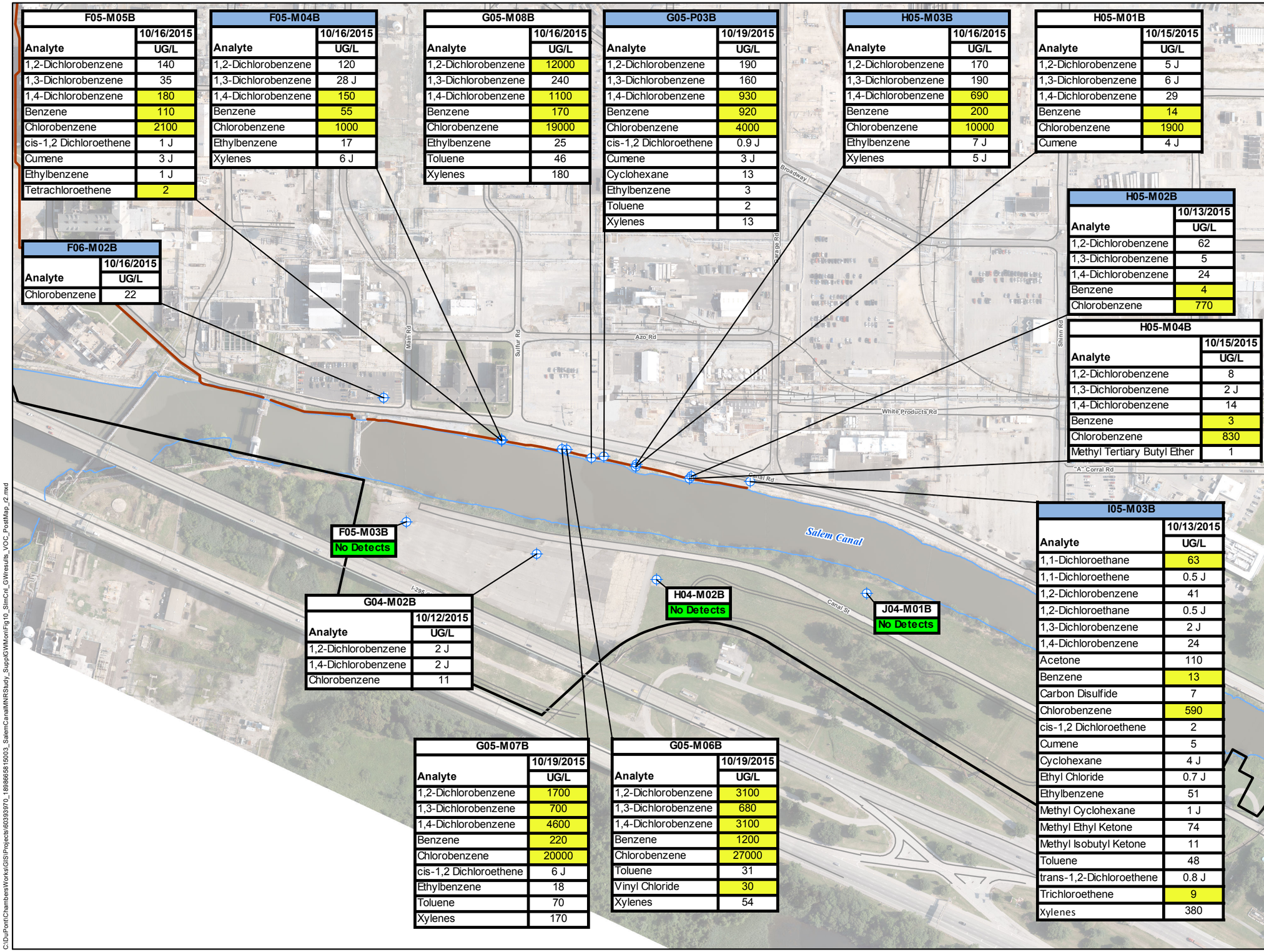

H05-M02 and H05-M04B Well Pair
Hydrograph
Elevation (Ft NAVD)
Rainfall (inches)
3
2.5
2
1.5
1
0.5
0
-0.5
1.2
1
0.8
0.6
0.4
0.2
0
0.98
14-Dec
15-Dec
16-Dec
17-Dec
18-Dec
19-Dec
20-Dec
21-Dec
22-Dec
Rainfall
H05-M02B
H05-M04B
M02B-Hand
M04B-Hand
Salem Canal
SC Hand


G04-M02B
Hydrograph
Elevation (Ft NAVD)
3
2.5
2
1.5
1
0.5
0
-0.5
4-Jan
4-Jan
5-Jan
5-Jan
6-Jan
6-Jan
7-Jan
7-Jan
8-Jan
8-Jan
9-Jan
Date
G04-M02B
Salem Canal
G04-M02B - Hand
SC-Hand
No rainfall from January 4th through 9th


I05-M03B
Hydrograph
Rainfall
I05-M03B
Salem Canal
I05-M03B-Hand
SC-Hand
0.75
0.14
0.05
Elevation (Ft NAVD)
Rainfall (inches)
Date
3
2.5
2
1.5
1
0.5
0
-0.5
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
28-Dec
29-Dec
30-Dec
31-Dec
1-Jan
2-Jan
3-Jan
4-Jan
5-Jan

Appendix D

Groundwater Posting Maps



F05-M05B	
	10/16/2015
Analyte	UG/L
1,2-Dichlorobenzene	140
1,3-Dichlorobenzene	35
1,4-Dichlorobenzene	180
Benzene	110
Chlorobenzene	2100
cis-1,2 Dichloroethene	1 J
Cumene	3 J
Ethylbenzene	1 J
Tetrachloroethene	2

F05-M04B	
	10/16/2015
Analyte	UG/L
1,2-Dichlorobenzene	120
1,3-Dichlorobenzene	28 J
1,4-Dichlorobenzene	150
Benzene	55
Chlorobenzene	1000
Ethylbenzene	17
Xylenes	6 J

G05-M08B	
	10/16/2015
Analyte	UG/L
1,2-Dichlorobenzene	12000
1,3-Dichlorobenzene	240
1,4-Dichlorobenzene	1100
Benzene	170
Chlorobenzene	19000
Ethylbenzene	25
Toluene	46
Xylenes	180

G05-P03B	
	10/19/2015
Analyte	UG/L
1,2-Dichlorobenzene	190
1,3-Dichlorobenzene	160
1,4-Dichlorobenzene	930
Benzene	920
Chlorobenzene	4000
cis-1,2 Dichloroethene	0.9 J
Cumene	3 J
Cyclohexane	13
Ethylbenzene	3
Toluene	2
Xylenes	13

H05-M03B	
	10/16/2015
Analyte	UG/L
1,2-Dichlorobenzene	170
1,3-Dichlorobenzene	190
1,4-Dichlorobenzene	690
Benzene	200
Chlorobenzene	10000
Ethylbenzene	7 J
Xylenes	5 J

H05-M01B	
	10/15/2015
Analyte	UG/L
1,2-Dichlorobenzene	5 J
1,3-Dichlorobenzene	6 J
1,4-Dichlorobenzene	29
Benzene	14
Chlorobenzene	1900
Cumene	4 J

F06-M02B	
	10/16/2015
Analyte	UG/L
Chlorobenzene	22

H05-M02B	
	10/13/2015
Analyte	UG/L
1,2-Dichlorobenzene	62
1,3-Dichlorobenzene	5
1,4-Dichlorobenzene	24
Benzene	4
Chlorobenzene	770

H05-M04B	
	10/15/2015
Analyte	UG/L
1,2-Dichlorobenzene	8
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	14
Benzene	3
Chlorobenzene	830
Methyl Tertiary Butyl Ether	1

F05-M03B
No Detects

G04-M02B	
	10/12/2015
Analyte	UG/L
1,2-Dichlorobenzene	2 J
1,4-Dichlorobenzene	2 J
Chlorobenzene	11

H04-M02B
No Detects

J04-M01B
No Detects

I05-M03B	
	10/13/2015
Analyte	UG/L
1,1-Dichloroethane	63
1,1-Dichloroethene	0.5 J
1,2-Dichlorobenzene	41
1,2-Dichloroethane	0.5 J
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	24
Acetone	110
Benzene	13
Carbon Disulfide	7
Chlorobenzene	590
cis-1,2 Dichloroethene	2
Cumene	5
Cyclohexane	4 J
Ethyl Chloride	0.7 J
Ethylbenzene	51
Methyl Cyclohexane	1 J
Methyl Ethyl Ketone	74
Methyl Isobutyl Ketone	11
Toluene	48
trans-1,2-Dichloroethene	0.8 J
Trichloroethene	9
Xylenes	380

G05-M07B	
	10/19/2015
Analyte	UG/L
1,2-Dichlorobenzene	1700
1,3-Dichlorobenzene	700
1,4-Dichlorobenzene	4600
Benzene	220
Chlorobenzene	20000
cis-1,2 Dichloroethene	6 J
Ethylbenzene	18
Toluene	70
Xylenes	170

G05-M06B	
	10/19/2015
Analyte	UG/L
1,2-Dichlorobenzene	3100
1,3-Dichlorobenzene	680
1,4-Dichlorobenzene	3100
Benzene	1200
Chlorobenzene	27000
Toluene	31
Vinyl Chloride	30
Xylenes	54

Legend

- MONITORING WELL WITH GW RESULTS
- SHEET PILE BARRIER (SPB)
- EDGE OF PAVEMENT/CURB
- RAILROAD
- SHORELINE
- CHEMOURS PROPERTY BOUNDARY

NOTES:
GROUNDWATER SAMPLES COLLECTED BETWEEN OCTOBER 12-19, 2015.

WELL NAME IN BLUE HIGHLIGHT INDICATES LOCATION IS UPGRADIENT OF THE SPB.

J = ANALYTE PRESENT. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

YELLOW HIGHLIGHT INDICATES EXCEEDANCE OF NJ CLASSIIA 11/09 CRITERIA.

WELLS G05-M06B AND G05-M07B ARE ANGLED WELLS WHOSE SCREENS SAMPLE GROUNDWATER FROM BENEATH SALEM CANAL.

AERIAL INFORMATION:
2014 AXIS GEOSPATIAL LLC.
MAP PROJECTION:
NAD83 NEW JERSEY STATE PLANE FT

N W E S

0 150 300 600
Feet
1 inch = 300 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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Newark, DE 19713

SALEM CANAL B-AQUIFER GROUNDWATER VOC DETECTIONS - OCTOBER 2015

CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18986658.15003	PROJECT NUMBER: 60393970
DESIGNED BY: CLM	DATE: 4/18/2016
DRAWN BY: CAD	FIGURE NUMBER: 10
DATA QUALITY CHECK BY: SAM	

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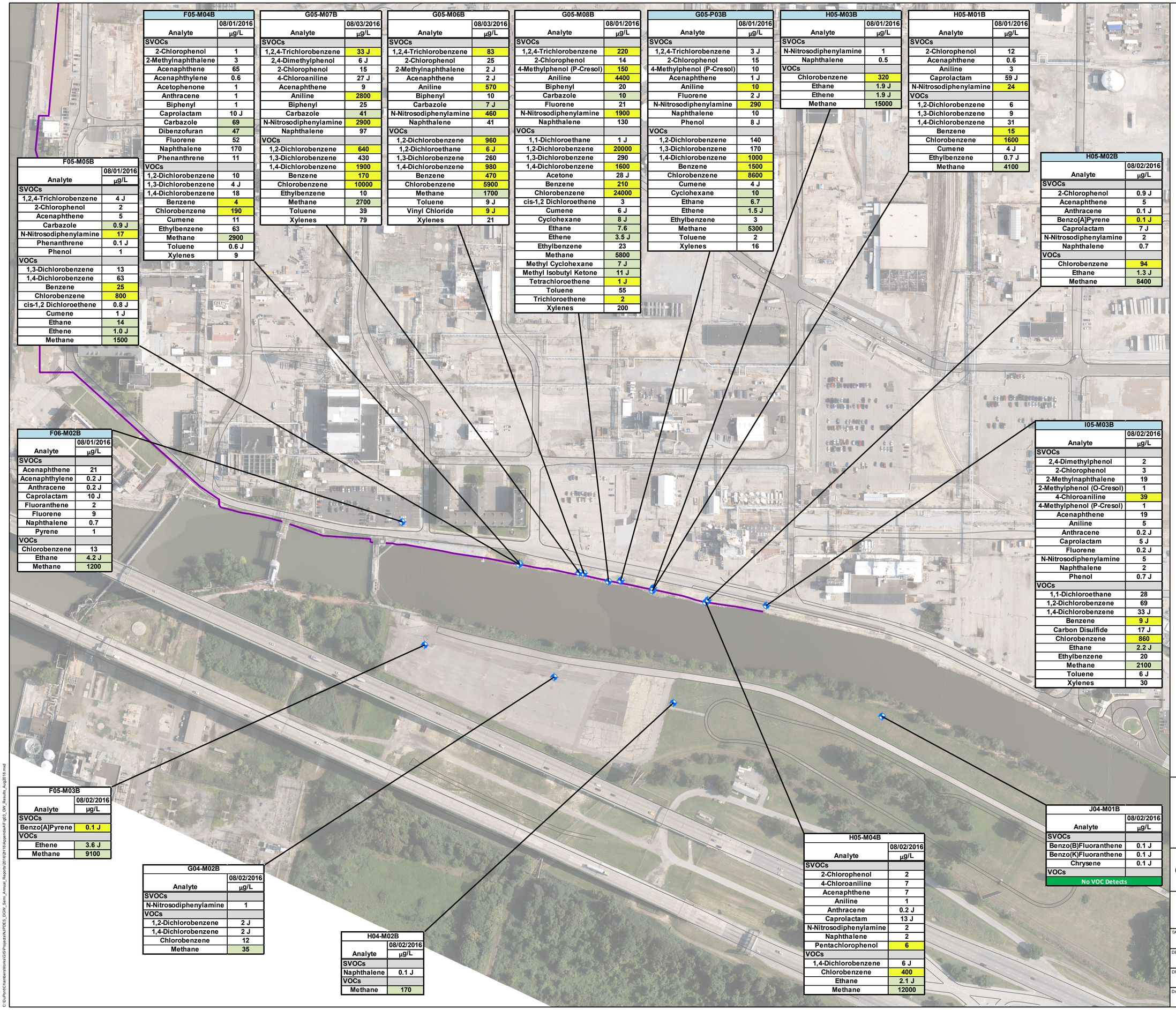


F05-M04B	
Analyte	08/01/2016 µg/L
SVOCs	
2-Chlorophenol	1
2-Methylnaphthalene	3
Acenaphthene	65
Acenaphthylene	0.6
Acetophenone	1
Anthracene	1
Biphenyl	1
Caprolactam	10 J
Carbazole	69
Dibenzofuran	47
Fluorene	52
Naphthalene	170
Phenanthrene	11
VOCs	
1,2-Dichlorobenzene	10
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	18
Benzene	4
Chlorobenzene	190
Cumene	11
Ethylbenzene	63
Methane	2900
Toluene	0.6 J
Xylenes	9

G05-M07B	
Analyte	08/03/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	33 J
2,4-Dimethylphenol	6 J
2-Chlorophenol	15
4-Chloroaniline	27 J
Acenaphthene	9
Aniline	2800
Biphenyl	25
Carbazole	41
N-Nitrosodiphenylamine	2900
Naphthalene	97
VOCs	
1,2-Dichlorobenzene	640
1,3-Dichlorobenzene	430
1,4-Dichlorobenzene	1900
Benzene	170
Chlorobenzene	10000
Ethylbenzene	10
Methane	2700
Toluene	39
Xylenes	79

G05-M06B	
Analyte	08/03/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	83
2-Chlorophenol	25
2-Methylnaphthalene	2 J
Acenaphthene	2 J
Aniline	570
Biphenyl	10
Carbazole	7 J
N-Nitrosodiphenylamine	460
Naphthalene	41
VOCs	
1,2-Dichlorobenzene	960
1,2-Dichloroethane	6 J
1,3-Dichlorobenzene	260
1,4-Dichlorobenzene	980
Benzene	470
Chlorobenzene	5900
Methane	1700
Toluene	9 J
Vinyl Chloride	9 J
Xylenes	21

G05-M08B	
Analyte	08/01/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	220
2-Chlorophenol	14
4-Methylphenol (P-Cresol)	150
Aniline	4400
Biphenyl	20
Carbazole	10
Fluorene	21
N-Nitrosodiphenylamine	1900
Naphthalene	130
VOCs	
1,1-Dichloroethane	1 J
1,2-Dichlorobenzene	20000
1,3-Dichlorobenzene	290
1,4-Dichlorobenzene	1600
Acetone	28 J
Benzene	210
Chlorobenzene	24000
cis-1,2 Dichloroethene	3
Cumene	6 J
Cyclohexane	8 J
Ethane	7.6
Ethene	3.5 J
Ethylbenzene	23
Methane	5800
Methyl Cyclohexane	7 J
Methyl Isobutyl Ketone	11 J
Tetrachloroethene	1 J
Toluene	55
Trichloroethene	2
Xylenes	200

G05-P03B	
Analyte	08/01/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	3 J
2-Chlorophenol	15
4-Methylphenol (P-Cresol)	10
Acenaphthene	1 J
Aniline	10
Fluorene	2 J
N-Nitrosodiphenylamine	290
Naphthalene	10
Phenol	8 J
VOCs	
1,2-Dichlorobenzene	140
1,3-Dichlorobenzene	170
1,4-Dichlorobenzene	1000
Benzene	1500
Chlorobenzene	8600
Cumene	4 J
Cyclohexane	10
Ethane	6.7
Ethene	1.5 J
Ethylbenzene	3
Methane	5300
Toluene	2
Xylenes	16

H05-M03B	
Analyte	08/01/2016 µg/L
SVOCs	
N-Nitrosodiphenylamine	1
Naphthalene	0.5
VOCs	
Chlorobenzene	320
Ethane	1.9 J
Ethene	1.9 J
Methane	15000

H05-M01B	
Analyte	08/01/2016 µg/L
SVOCs	
2-Chlorophenol	12
Acenaphthene	0.6
Aniline	3
Caprolactam	59 J
N-Nitrosodiphenylamine	24
VOCs	
1,2-Dichlorobenzene	6
1,3-Dichlorobenzene	9
1,4-Dichlorobenzene	31
Benzene	15
Chlorobenzene	1600
Cumene	4 J
Ethylbenzene	0.7 J
Methane	4100

F05-M05B	
Analyte	08/01/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	4 J
2-Chlorophenol	2
Acenaphthene	5
Carbazole	0.9 J
N-Nitrosodiphenylamine	17
Phenanthrene	0.1 J
Phenol	1
VOCs	
1,3-Dichlorobenzene	13
1,4-Dichlorobenzene	63
Benzene	25
Chlorobenzene	800
cis-1,2 Dichloroethene	0.8 J
Cumene	1 J
Ethane	14
Ethene	1.0 J
Methane	1500

H05-M02B	
Analyte	08/02/2016 µg/L
SVOCs	
2-Chlorophenol	0.9 J
Acenaphthene	5
Anthracene	0.1 J
Benzo[A]Pyrene	0.1 J
Caprolactam	7 J
N-Nitrosodiphenylamine	2
Naphthalene	0.7
VOCs	
Chlorobenzene	94
Ethane	1.3 J
Methane	8400

F06-M02B	
Analyte	08/01/2016 µg/L
SVOCs	
Acenaphthene	21
Acenaphthylene	0.2 J
Anthracene	0.2 J
Caprolactam	10 J
Fluoranthene	2
Fluorene	9
Naphthalene	0.7
Pyrene	1
VOCs	
Chlorobenzene	13
Ethane	4.2 J
Methane	1200

I05-M03B	
Analyte	08/02/2016 µg/L
SVOCs	
2,4-Dimethylphenol	2
2-Chlorophenol	3
2-Methylnaphthalene	19
2-Methylphenol (O-Cresol)	1
4-Chloroaniline	39
4-Methylphenol (P-Cresol)	1
Acenaphthene	19
Aniline	5
Anthracene	0.2 J
Caprolactam	5 J
Fluorene	0.2 J
N-Nitrosodiphenylamine	5
Naphthalene	2
Phenol	0.7 J
VOCs	
1,1-Dichloroethane	28
1,2-Dichlorobenzene	69
1,4-Dichlorobenzene	33 J
Benzene	9 J
Carbon Disulfide	17 J
Chlorobenzene	860
Ethane	2.2 J
Ethylbenzene	20
Methane	2100
Toluene	6 J
Xylenes	30

F05-M03B	
Analyte	08/02/2016 µg/L
SVOCs	
Benzo[A]Pyrene	0.1 J
VOCs	
Ethene	3.6 J
Methane	9100

G04-M02B	
Analyte	08/02/2016 µg/L
SVOCs	
N-Nitrosodiphenylamine	1
VOCs	
1,2-Dichlorobenzene	2 J
1,4-Dichlorobenzene	2 J
Chlorobenzene	12
Methane	35

H04-M02B	
Analyte	08/02/2016 µg/L
SVOCs	
Naphthalene	0.1 J
VOCs	
Methane	170

H05-M04B	
Analyte	08/02/2016 µg/L
SVOCs	
2-Chlorophenol	2
4-Chloroaniline	7
Acenaphthene	7
Aniline	1
Anthracene	0.2 J
Caprolactam	13 J
N-Nitrosodiphenylamine	2
Naphthalene	2
Pentachlorophenol	6
VOCs	
1,4-Dichlorobenzene	6 J
Chlorobenzene	400
Ethane	2.1 J
Methane	12000

J04-M01B	
Analyte	08/02/2016 µg/L
SVOCs	
Benzo(B)Fluoranthene	0.1 J
Benzo(K)Fluoranthene	0.1 J
Chrysene	0.1 J
VOCs	
No VOC Detects	

Legend

B AQUIFER MONITORING WELL

Notes:
Groundwater samples collected between August 1-3, 2016.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

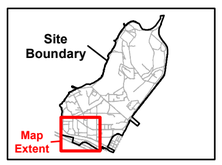
Yellow highlighted cell indicates exceedance of NJ ClassIIA 11/09 criteria.

Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet



N
W E
S

0 100 200 400
Feet
1 inch = 200 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - AUGUST 2016

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2016
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 17002	PROJECT NUMBER: 60532795
DESIGNED BY: K. DAVIS	DATE: 4/10/2017
DRAWN BY: C. DUFFY	FIGURE NUMBER: 3
DATA QUALITY CHECK BY: S. MORGAN	

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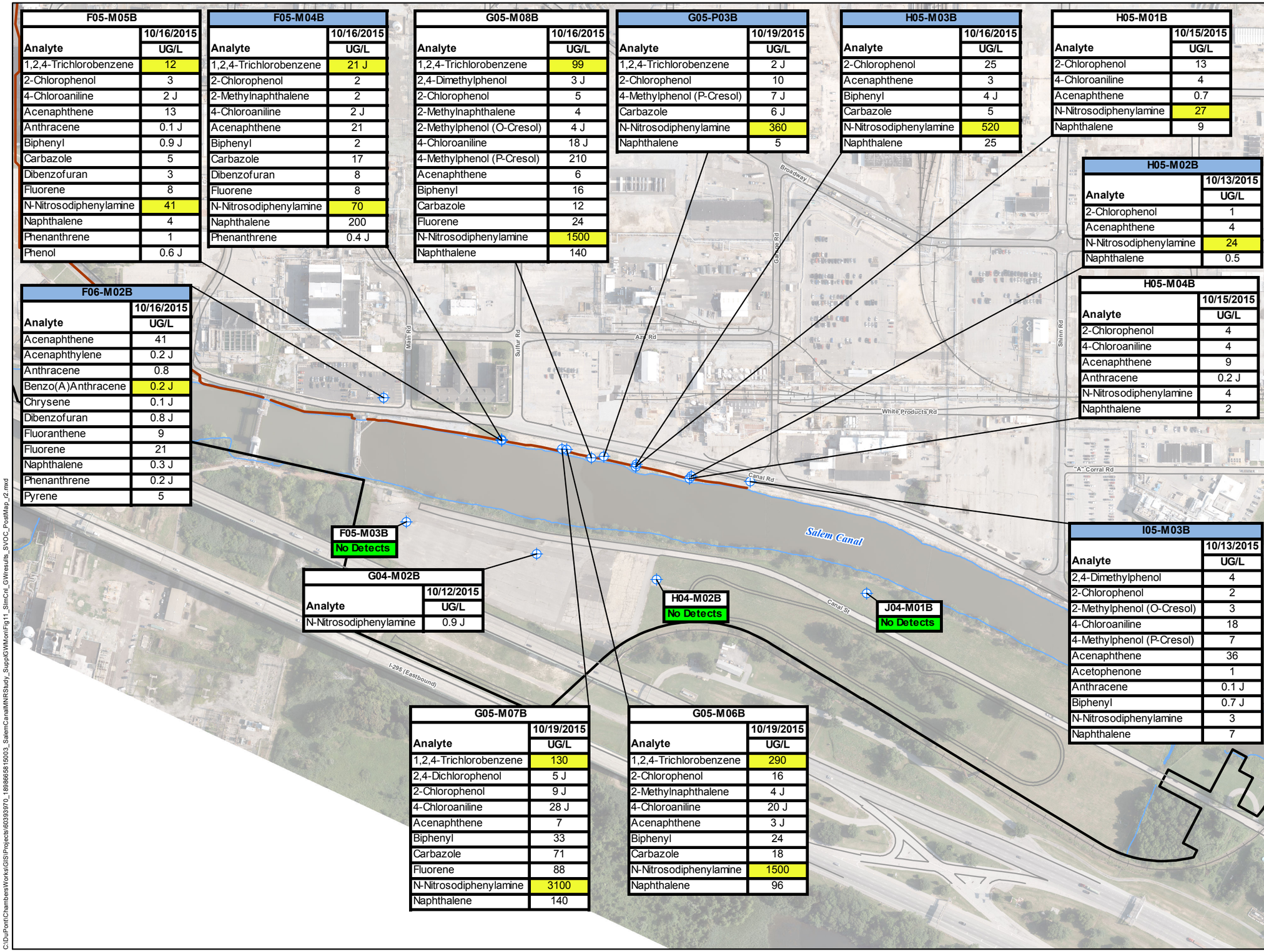

F05-M05B

Analyte	10/16/2015 UG/L
1,2,4-Trichlorobenzene	12
2-Chlorophenol	3
4-Chloroaniline	2 J
Acenaphthene	13
Anthracene	0.1 J
Biphenyl	0.9 J
Carbazole	5
Dibenzofuran	3
Fluorene	8
N-Nitrosodiphenylamine	41
Naphthalene	4
Phenanthrene	1
Phenol	0.6 J

F05-M04B

Analyte	10/16/2015 UG/L
1,2,4-Trichlorobenzene	21 J
2-Chlorophenol	2
2-Methylnaphthalene	2
4-Chloroaniline	2 J
Acenaphthene	21
Biphenyl	2
Carbazole	17
Dibenzofuran	8
Fluorene	8
N-Nitrosodiphenylamine	70
Naphthalene	200
Phenanthrene	0.4 J

G05-M08B

Analyte	10/16/2015 UG/L
1,2,4-Trichlorobenzene	99
2,4-Dimethylphenol	3 J
2-Chlorophenol	5
2-Methylnaphthalene	4
2-Methylphenol (O-Cresol)	4 J
4-Chloroaniline	18 J
4-Methylphenol (P-Cresol)	210
Acenaphthene	6
Biphenyl	16
Carbazole	12
Fluorene	24
N-Nitrosodiphenylamine	1500
Naphthalene	140

G05-P03B

Analyte	10/19/2015 UG/L
1,2,4-Trichlorobenzene	2 J
2-Chlorophenol	10
4-Methylphenol (P-Cresol)	7 J
Carbazole	6 J
N-Nitrosodiphenylamine	360
Naphthalene	5

H05-M03B

Analyte	10/16/2015 UG/L
2-Chlorophenol	25
Acenaphthene	3
Biphenyl	4 J
Carbazole	5
N-Nitrosodiphenylamine	520
Naphthalene	25

H05-M01B

Analyte	10/15/2015 UG/L
2-Chlorophenol	13
4-Chloroaniline	4
Acenaphthene	0.7
N-Nitrosodiphenylamine	27
Naphthalene	9

H05-M02B

Analyte	10/13/2015 UG/L
2-Chlorophenol	1
Acenaphthene	4
N-Nitrosodiphenylamine	24
Naphthalene	0.5

H05-M04B

Analyte	10/15/2015 UG/L
2-Chlorophenol	4
4-Chloroaniline	4
Acenaphthene	9
Anthracene	0.2 J
N-Nitrosodiphenylamine	4
Naphthalene	2

F06-M02B

Analyte	10/16/2015 UG/L
Acenaphthene	41
Acenaphthylene	0.2 J
Anthracene	0.8
Benzo(A)Anthracene	0.2 J
Chrysene	0.1 J
Dibenzofuran	0.8 J
Fluoranthene	9
Fluorene	21
Naphthalene	0.3 J
Phenanthrene	0.2 J
Pyrene	5

F05-M03B
No Detects

G04-M02B

Analyte	10/12/2015 UG/L
N-Nitrosodiphenylamine	0.9 J

H04-M02B
No Detects

J04-M01B
No Detects

I05-M03B

Analyte	10/13/2015 UG/L
2,4-Dimethylphenol	4
2-Chlorophenol	2
2-Methylphenol (O-Cresol)	3
4-Chloroaniline	18
4-Methylphenol (P-Cresol)	7
Acenaphthene	36
Acetophenone	1
Anthracene	0.1 J
Biphenyl	0.7 J
N-Nitrosodiphenylamine	3
Naphthalene	7

G05-M07B

Analyte	10/19/2015 UG/L
1,2,4-Trichlorobenzene	130
2,4-Dichlorophenol	5 J
2-Chlorophenol	9 J
4-Chloroaniline	28 J
Acenaphthene	7
Biphenyl	33
Carbazole	71
Fluorene	88
N-Nitrosodiphenylamine	3100
Naphthalene	140

G05-M06B

Analyte	10/19/2015 UG/L
1,2,4-Trichlorobenzene	290
2-Chlorophenol	16
2-Methylnaphthalene	4 J
4-Chloroaniline	20 J
Acenaphthene	3 J
Biphenyl	24
Carbazole	18
N-Nitrosodiphenylamine	1500
Naphthalene	96

Legend

- MONITORING WELL WITH GW RESULTS
- SHEET PILE BARRIER (SPB)
- EDGE OF PAVEMENT/CURB
- RAILROAD
- SHORELINE
- CHEMOURS PROPERTY BOUNDARY

NOTES:
GROUNDWATER SAMPLES COLLECTED BETWEEN OCTOBER 12-19, 2015.

WELL NAME IN BLUE HIGHLIGHT INDICATES LOCATION IS UPGRADIENT OF THE SPB.

J = ANALYTE PRESENT. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

YELLOW HIGHLIGHT INDICATES EXCEEDANCE OF NJ CLASSIIA 11/09 CRITERIA.

WELLS G05-M06B AND G05-M07B ARE ANGLED WELLS WHOSE SCREENS SAMPLE GROUNDWATER FROM BENEATH SALEM CANAL.

AERIAL INFORMATION:
2014 AXIS GEOSPATIAL LLC.
MAP PROJECTION:
NAD83 NEW JERSEY STATE PLANE FT

N W E S

0 150 300 600
Feet
1 inch = 300 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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SALEM CANAL B-AQUIFER GROUNDWATER SVOC DETECTIONS - OCTOBER 2015

CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18986658.15003	PROJECT NUMBER: 60393970
DESIGNED BY: CLM	DATE: 4/18/2016
DRAWN BY: CAD	FIGURE NUMBER: 11
DATA QUALITY CHECK BY: SAM	

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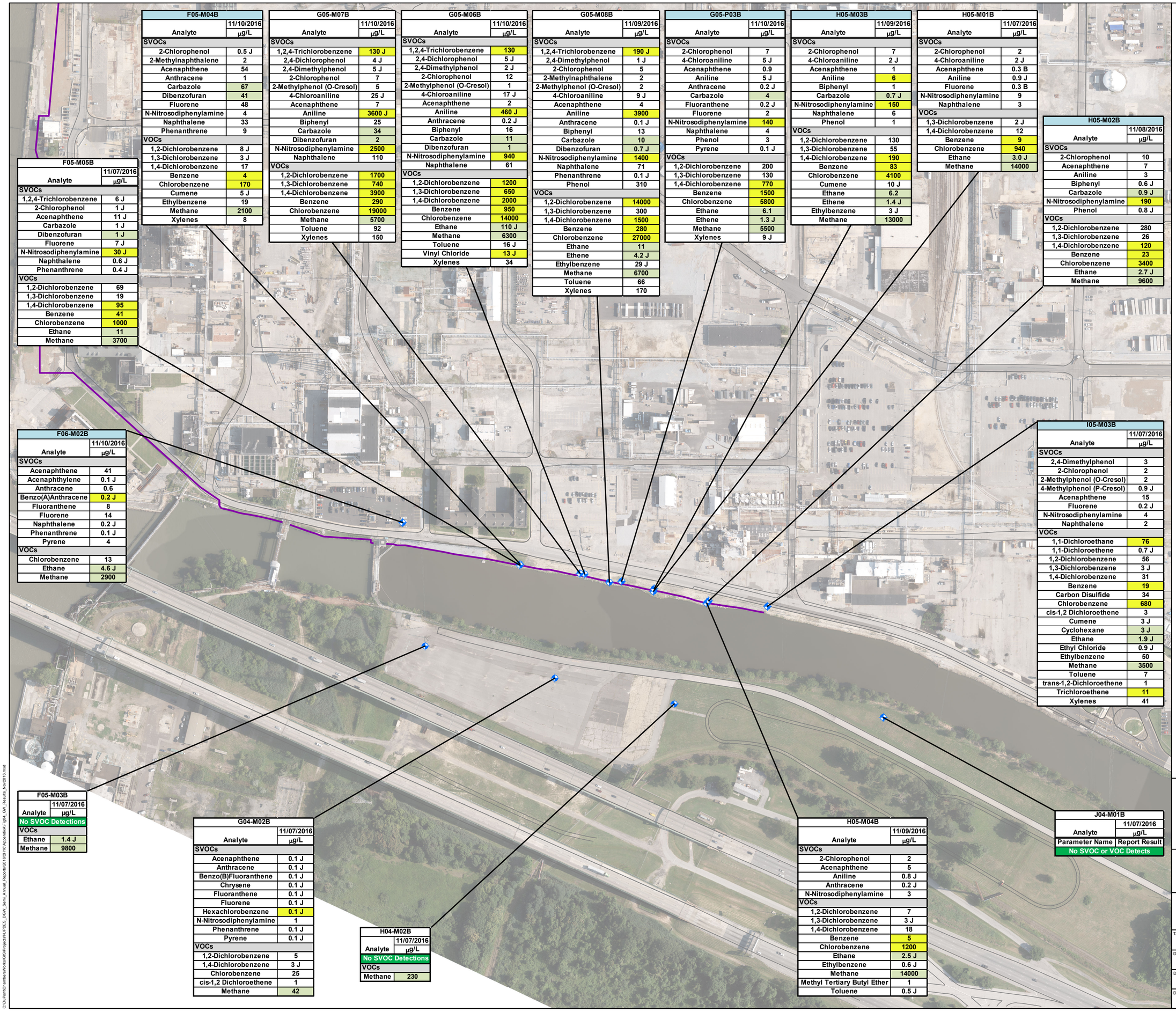


F05-M04B	
Analyte	11/10/2016 µg/L
SVOCs	
2-Chlorophenol	0.5 J
2-Methylnaphthalene	2
Acenaphthene	54
Anthracene	1
Carbazole	67
Dibenzofuran	41
Fluorene	48
N-Nitrosodiphenylamine	4
Naphthalene	33
Phenanthrene	9
VOCs	
1,2-Dichlorobenzene	8 J
1,3-Dichlorobenzene	3 J
1,4-Dichlorobenzene	17
Benzene	4
Chlorobenzene	170
Cumene	5 J
Ethylbenzene	19
Methane	2100
Xylenes	8

G05-M07B	
Analyte	11/10/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	130 J
2,4-Dichlorophenol	4 J
2,4-Dimethylphenol	5 J
2-Chlorophenol	7
2-Methylphenol (O-Cresol)	5
4-Chloroaniline	25 J
Acenaphthene	7
Aniline	3600 J
Biphenyl	25
Carbazole	34
Dibenzofuran	2
N-Nitrosodiphenylamine	2500
Naphthalene	110
VOCs	
1,2-Dichlorobenzene	1700
1,3-Dichlorobenzene	740
1,4-Dichlorobenzene	3900
Benzene	290
Chlorobenzene	19000
Methane	5700
Toluene	92
Xylenes	150

G05-M06B	
Analyte	11/10/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	130
2,4-Dichlorophenol	5 J
2,4-Dimethylphenol	2 J
2-Chlorophenol	12
2-Methylphenol (O-Cresol)	1
4-Chloroaniline	17 J
Acenaphthene	2
Aniline	460 J
Anthracene	0.2 J
Biphenyl	16
Carbazole	11
Dibenzofuran	1
N-Nitrosodiphenylamine	940
Naphthalene	61
VOCs	
1,2-Dichlorobenzene	1200
1,3-Dichlorobenzene	650
1,4-Dichlorobenzene	2000
Benzene	950
Chlorobenzene	14000
Ethane	110 J
Methane	6300
Toluene	16 J
Vinyl Chloride	13 J
Xylenes	34

G05-M08B	
Analyte	11/09/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	190 J
2,4-Dimethylphenol	1 J
2-Chlorophenol	5
2-Methylnaphthalene	2
2-Methylphenol (O-Cresol)	2
4-Chloroaniline	9 J
Acenaphthene	4
Aniline	3900
Anthracene	0.1 J
Biphenyl	13
Carbazole	10
Dibenzofuran	0.7 J
N-Nitrosodiphenylamine	1400
Naphthalene	71
Phenanthrene	0.1 J
Phenol	310
VOCs	
1,2-Dichlorobenzene	14000
1,3-Dichlorobenzene	300
1,4-Dichlorobenzene	1500
Benzene	280
Chlorobenzene	27000
Ethane	11
Ethene	4.2 J
Ethylbenzene	29 J
Methane	6700
Toluene	66
Xylenes	170

G05-P03B	
Analyte	11/10/2016 µg/L
SVOCs	
2-Chlorophenol	7
4-Chloroaniline	5 J
Acenaphthene	0.9
Aniline	5 J
Anthracene	0.2 J
Carbazole	4
Fluoranthene	0.2 J
Fluorene	2
N-Nitrosodiphenylamine	140
Naphthalene	4
Phenol	3
Pyrene	0.1 J
VOCs	
1,2-Dichlorobenzene	200
1,3-Dichlorobenzene	130
1,4-Dichlorobenzene	770
Benzene	1500
Chlorobenzene	5800
Ethane	6.1
Ethene	1.3 J
Methane	5500
Xylenes	9 J

H05-M03B	
Analyte	11/09/2016 µg/L
SVOCs	
2-Chlorophenol	7
4-Chloroaniline	2 J
Acenaphthene	1
Aniline	6
Biphenyl	1
Carbazole	0.7 J
N-Nitrosodiphenylamine	150
Naphthalene	6
Phenol	1
VOCs	
1,2-Dichlorobenzene	130
1,3-Dichlorobenzene	55
1,4-Dichlorobenzene	190
Benzene	83
Chlorobenzene	4100
Cumene	10 J
Ethane	6.2
Ethene	1.4 J
Ethylbenzene	3 J
Methane	13000

H05-M01B	
Analyte	11/07/2016 µg/L
SVOCs	
2-Chlorophenol	2
4-Chloroaniline	2 J
Acenaphthene	0.3 B
Aniline	0.9 J
Fluorene	0.3 B
N-Nitrosodiphenylamine	9
Naphthalene	3
VOCs	
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	12
Benzene	9
Chlorobenzene	940
Ethane	3.0 J
Methane	14000

H05-M02B	
Analyte	11/08/2016 µg/L
SVOCs	
2-Chlorophenol	10
Acenaphthene	7
Aniline	3
Biphenyl	0.6 J
Carbazole	0.9 J
N-Nitrosodiphenylamine	190
Phenol	0.8 J
VOCs	
1,2-Dichlorobenzene	280
1,3-Dichlorobenzene	26
1,4-Dichlorobenzene	120
Benzene	23
Chlorobenzene	3400
Ethane	2.7 J
Methane	9600

F05-M05B	
Analyte	11/07/2016 µg/L
SVOCs	
1,2,4-Trichlorobenzene	6 J
2-Chlorophenol	1 J
Acenaphthene	11 J
Carbazole	1 J
Dibenzofuran	1 J
Fluorene	7 J
N-Nitrosodiphenylamine	30 J
Naphthalene	0.6 J
Phenanthrene	0.4 J
VOCs	
1,2-Dichlorobenzene	69
1,3-Dichlorobenzene	19
1,4-Dichlorobenzene	95
Benzene	41
Chlorobenzene	1000
Ethane	11
Methane	3700

F06-M02B	
Analyte	11/10/2016 µg/L
SVOCs	
Acenaphthene	41
Acenaphthylene	0.1 J
Anthracene	0.6
Benzo(A)Anthracene	0.2 J
Fluoranthene	8
Fluorene	14
Naphthalene	0.2 J
Phenanthrene	0.1 J
Pyrene	4
VOCs	
Chlorobenzene	13
Ethane	4.6 J
Methane	2900

I05-M03B	
Analyte	11/07/2016 µg/L
SVOCs	
2,4-Dimethylphenol	3
2-Chlorophenol	2
2-Methylphenol (O-Cresol)	2
4-Methylphenol (P-Cresol)	0.9 J
Acenaphthene	15
Fluorene	0.2 J
N-Nitrosodiphenylamine	4
Naphthalene	2
VOCs	
1,1-Dichloroethane	76
1,1-Dichloroethene	0.7 J
1,2-Dichlorobenzene	56
1,3-Dichlorobenzene	3 J
1,4-Dichlorobenzene	31
Benzene	19
Carbon Disulfide	34
Chlorobenzene	680
cis-1,2 Dichloroethene	3
Cumene	3 J
Cyclohexane	3 J
Ethane	1.9 J
Ethyl Chloride	0.9 J
Ethylbenzene	50
Methane	3500
Toluene	7
trans-1,2-Dichloroethene	1
Trichloroethene	11
Xylenes	41

F05-M03B	
Analyte	11/07/2016 µg/L
No SVOC Detections	
VOCs	
Ethane	1.4 J
Methane	9800

G04-M02B	
Analyte	11/07/2016 µg/L
SVOCs	
Acenaphthene	0.1 J
Anthracene	0.1 J
Benzo(B)Fluoranthene	0.1 J
Chrysene	0.1 J
Fluoranthene	0.1 J
Fluorene	0.1 J
Hexachlorobenzene	0.1 J
N-Nitrosodiphenylamine	1
Phenanthrene	0.1 J
Pyrene	0.1 J
VOCs	
1,2-Dichlorobenzene	5
1,4-Dichlorobenzene	3 J
Chlorobenzene	25
cis-1,2 Dichloroethene	1
Methane	42

H04-M02B	
Analyte	11/07/2016 µg/L
No SVOC Detections	
VOCs	
Methane	230

H05-M04B	
Analyte	11/09/2016 µg/L
SVOCs	
2-Chlorophenol	2
Acenaphthene	5
Aniline	0.8 J
Anthracene	0.2 J
N-Nitrosodiphenylamine	3
VOCs	
1,2-Dichlorobenzene	7
1,3-Dichlorobenzene	3 J
1,4-Dichlorobenzene	18
Benzene	5
Chlorobenzene	1200
Ethane	2.5 J
Ethylbenzene	0.6 J
Methane	14000
Methyl Tertiary Butyl Ether	1
Toluene	0.5 J

J04-M01B	
Analyte	11/07/2016 µg/L
Parameter Name	Report Result
No SVOC or VOC Detects	

Legend

B AQUIFER MONITORING WELL

Notes:
Groundwater samples collected between November 7-10, 2016.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

B = Comparable detection in lab or field blank.

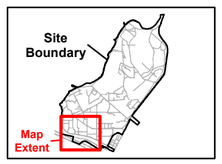
Yellow highlighted cell indicates exceedance of NJ ClassIIA 11/09 criteria.

Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet



N
W E
S

0 100 200 400
Feet
1 inch = 200 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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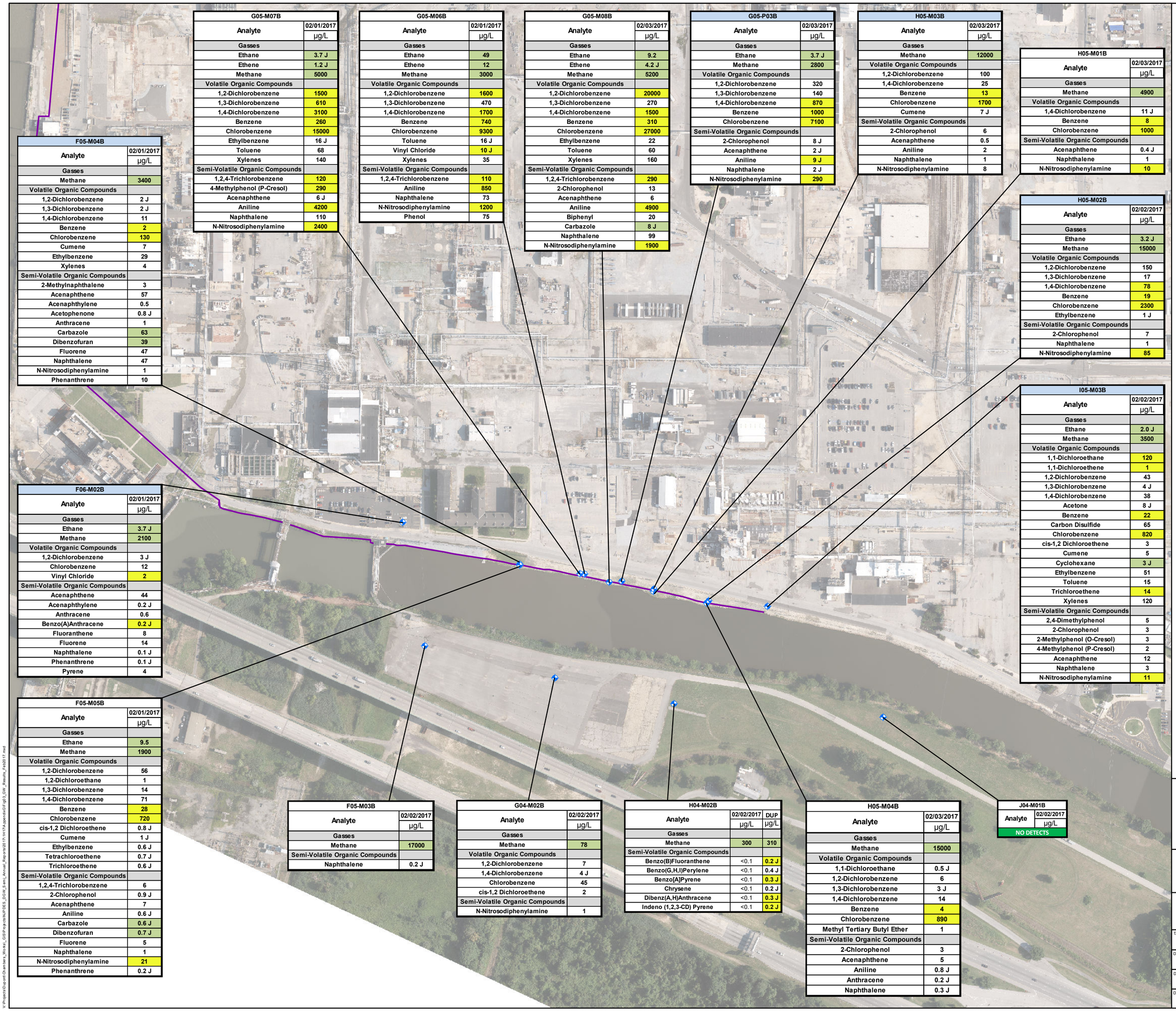
SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - NOVEMBER 2016

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2016
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 17002	PROJECT NUMBER: 60532795
DESIGNED BY: K. DAVIS	DATE: 4/10/2017
DRAWN BY: C. DUFFY	FIGURE NUMBER: 4
DATA QUALITY CHECK BY: S. MORGAN	

C:\DuPont\ChambersWorks\GIS\Projects\NJPDES_DGW_Semi_Annual_Reports\2016\2016\Appendix\AFig04_GW_Results_Nov2016.mxd



F05-M04B	
Analyte	02/01/2017
	µg/L
Gasses	
Methane	3400
Volatile Organic Compounds	
1,2-Dichlorobenzene	2 J
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	11
Benzene	2
Chlorobenzene	130
Cumene	7
Ethylbenzene	29
Xylenes	4
Semi-Volatile Organic Compounds	
2-Methylnaphthalene	3
Acenaphthene	57
Acenaphthylene	0.5
Acetophenone	0.8 J
Anthracene	1
Carbazole	63
Dibenzofuran	39
Fluorene	47
Naphthalene	47
N-Nitrosodiphenylamine	1
Phenanthrene	10

G05-M07B	
Analyte	02/01/2017
	µg/L
Gasses	
Ethane	3.7 J
Ethene	1.2 J
Methane	5000
Volatile Organic Compounds	
1,2-Dichlorobenzene	1500
1,3-Dichlorobenzene	610
1,4-Dichlorobenzene	3100
Benzene	260
Chlorobenzene	15000
Ethylbenzene	16 J
Toluene	68
Xylenes	140
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	120
4-Methylphenol (P-Cresol)	290
Acenaphthene	6 J
Aniline	4200
Naphthalene	110
N-Nitrosodiphenylamine	2400

G05-M06B	
Analyte	02/01/2017
	µg/L
Gasses	
Ethane	49
Ethene	12
Methane	3000
Volatile Organic Compounds	
1,2-Dichlorobenzene	1600
1,3-Dichlorobenzene	470
1,4-Dichlorobenzene	1700
Benzene	740
Chlorobenzene	9300
Toluene	16 J
Vinyl Chloride	10 J
Xylenes	35
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	110
Aniline	850
Naphthalene	73
N-Nitrosodiphenylamine	1200
Phenol	75

G05-M08B	
Analyte	02/03/2017
	µg/L
Gasses	
Ethane	9.2
Ethene	4.2 J
Methane	5200
Volatile Organic Compounds	
1,2-Dichlorobenzene	20000
1,3-Dichlorobenzene	270
1,4-Dichlorobenzene	1500
Benzene	310
Chlorobenzene	27000
Ethylbenzene	22
Toluene	60
Xylenes	160
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	290
2-Chlorophenol	13
Acenaphthene	6
Aniline	4900
Biphenyl	20
Carbazole	8 J
Naphthalene	99
N-Nitrosodiphenylamine	1900

G05-P03B	
Analyte	02/03/2017
	µg/L
Gasses	
Ethane	3.7 J
Methane	2800
Volatile Organic Compounds	
1,2-Dichlorobenzene	320
1,3-Dichlorobenzene	140
1,4-Dichlorobenzene	870
Benzene	1000
Chlorobenzene	7100
Semi-Volatile Organic Compounds	
2-Chlorophenol	8 J
Acenaphthene	2 J
Aniline	9 J
Naphthalene	2 J
N-Nitrosodiphenylamine	290

H05-M03B	
Analyte	02/03/2017
	µg/L
Gasses	
Methane	12000
Volatile Organic Compounds	
1,2-Dichlorobenzene	100
1,4-Dichlorobenzene	25
Benzene	13
Chlorobenzene	1700
Cumene	7 J
Semi-Volatile Organic Compounds	
2-Chlorophenol	6
Acenaphthene	0.5
Aniline	2
Naphthalene	1
N-Nitrosodiphenylamine	8

H05-M01B	
Analyte	02/03/2017
	µg/L
Gasses	
Methane	4900
Volatile Organic Compounds	
1,4-Dichlorobenzene	11 J
Benzene	8
Chlorobenzene	1000
Semi-Volatile Organic Compounds	
Acenaphthene	0.4 J
Naphthalene	1
N-Nitrosodiphenylamine	10

H05-M02B	
Analyte	02/02/2017
	µg/L
Gasses	
Ethane	3.2 J
Methane	15000
Volatile Organic Compounds	
1,2-Dichlorobenzene	150
1,3-Dichlorobenzene	17
1,4-Dichlorobenzene	78
Benzene	19
Chlorobenzene	2300
Ethylbenzene	1 J
Semi-Volatile Organic Compounds	
2-Chlorophenol	7
Naphthalene	1
N-Nitrosodiphenylamine	85

I05-M03B	
Analyte	02/02/2017
	µg/L
Gasses	
Ethane	2.0 J
Methane	3500
Volatile Organic Compounds	
1,1-Dichloroethane	120
1,1-Dichloroethene	1
1,2-Dichlorobenzene	43
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	38
Acetone	8 J
Benzene	22
Carbon Disulfide	65
Chlorobenzene	820
cis-1,2 Dichloroethene	3
Cumene	5
Cyclohexane	3 J
Ethylbenzene	51
Toluene	15
Trichloroethene	14
Xylenes	120
Semi-Volatile Organic Compounds	
2,4-Dimethylphenol	5
2-Chlorophenol	3
2-Methylphenol (O-Cresol)	3
4-Methylphenol (P-Cresol)	2
Acenaphthene	12
Naphthalene	3
N-Nitrosodiphenylamine	11

F06-M02B	
Analyte	02/01/2017
	µg/L
Gasses	
Ethane	3.7 J
Methane	2100
Volatile Organic Compounds	
1,2-Dichlorobenzene	3 J
Chlorobenzene	12
Vinyl Chloride	2
Semi-Volatile Organic Compounds	
Acenaphthene	44
Acenaphthylene	0.2 J
Anthracene	0.6
Benzo(A)Anthracene	0.2 J
Fluoranthene	8
Fluorene	14
Naphthalene	0.1 J
Phenanthrene	0.1 J
Pyrene	4

F05-M05B	
Analyte	02/01/2017
	µg/L
Gasses	
Ethane	9.5
Methane	1900
Volatile Organic Compounds	
1,2-Dichlorobenzene	56
1,2-Dichloroethane	1
1,3-Dichlorobenzene	14
1,4-Dichlorobenzene	71
Benzene	28
Chlorobenzene	720
cis-1,2 Dichloroethene	0.8 J
Cumene	1 J
Ethylbenzene	0.6 J
Tetrachloroethene	0.7 J
Trichloroethene	0.6 J
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	6
2-Chlorophenol	0.9 J
Acenaphthene	7
Aniline	0.6 J
Carbazole	0.6 J
Dibenzofuran	0.7 J
Fluorene	5
Naphthalene	1
N-Nitrosodiphenylamine	21
Phenanthrene	0.2 J

F05-M03B	
Analyte	02/02/2017
	µg/L
Gasses	
Methane	17000
Semi-Volatile Organic Compounds	
Naphthalene	0.2 J

G04-M02B	
Analyte	02/02/2017
	µg/L
Gasses	
Methane	78
Volatile Organic Compounds	
1,2-Dichlorobenzene	7
1,4-Dichlorobenzene	4 J
Chlorobenzene	45
cis-1,2 Dichloroethene	2
Semi-Volatile Organic Compounds	
N-Nitrosodiphenylamine	1

H04-M02B		
Analyte	02/02/2017	DUP
	µg/L	µg/L
Gasses		
Methane	300	310
Semi-Volatile Organic Compounds		
Benzo(B)Fluoranthene	<0.1	0.2 J
Benzo(G,H,I)Perylene	<0.1	0.4 J
Benzo[A]Pyrene	<0.1	0.3 J
Chrysene	<0.1	0.2 J
Dibenz(A,H)Anthracene	<0.1	0.3 J
Indeno (1,2,3-CD) Pyrene	<0.1	0.2 J

H05-M04B	
Analyte	02/03/2017
	µg/L
Gasses	
Methane	15000
Volatile Organic Compounds	
1,1-Dichloroethane	0.5 J
1,2-Dichlorobenzene	6
1,3-Dichlorobenzene	3 J
1,4-Dichlorobenzene	14
Benzene	4
Chlorobenzene	890
Methyl Tertiary Butyl Ether	1
Semi-Volatile Organic Compounds	
2-Chlorophenol	3
Acenaphthene	5
Aniline	0.8 J
Anthracene	0.2 J
Naphthalene	0.3 J

J04-M01B	
Analyte	02/02/2017
	µg/L
NO DETECTS	

LEGEND

B AQUIFER WELL

Notes:
Groundwater samples collected between February 1-3, 2017.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

Yellow highlighted cell indicates exceedance of NJ ClassIIA 11/09 criteria.

Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet

Site Boundary

Map Extent

N W E S

0 100 200 400

Feet
1 inch = 200 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - FEBRUARY 2017

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2016
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 17002	PROJECT NUMBER: 60532795
DESIGNED BY: S. MORGAN	DATE: 10/26/2017
DRAWN BY: M. LAYTON	FIGURE NUMBER: 3
DATA QUALITY CHECK BY: K. DAVIS	

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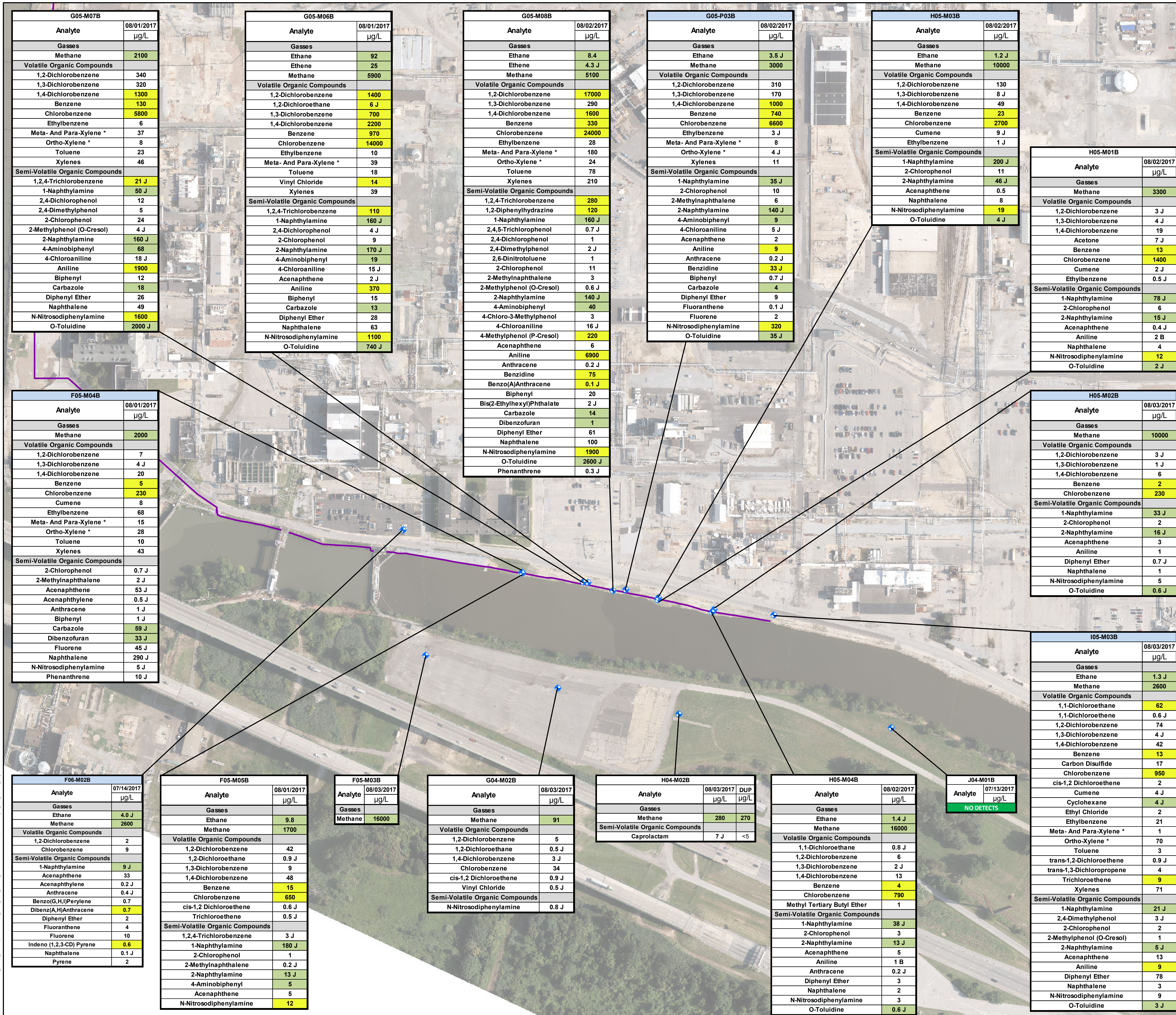


G05-M07B	08/01/2017
Analyte	µg/L
Gasses	
Methane	2100
Volatile Organic Compounds	
1,2-Dichlorobenzene	340
1,3-Dichlorobenzene	320
1,4-Dichlorobenzene	1300
Benzene	130
Chlorobenzene	5800
Ethylbenzene	6
Meta- And Para-Xylene *	37
Ortho-Xylene *	8
Toluene	23
Xylenes	46
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	21 J
1-Naphthylamine	50 J
2,4-Dichlorophenol	12
2,4-Dimethylphenol	5
2-Chlorophenol	24
2-Methylphenol (O-Cresol)	4 J
2-Naphthylamine	160 J
4-Aminobiphenyl	68
4-Chloroaniline	18 J
Aniline	1900
Biphenyl	12
Carbazole	18
Diphenyl Ether	26
Naphthalene	49
N-Nitrosodiphenylamine	1600
O-Toluidine	2000 J

G05-M06B	08/01/2017
Analyte	µg/L
Gasses	
Ethane	92
Ethene	25
Methane	5900
Volatile Organic Compounds	
1,2-Dichlorobenzene	1400
1,2-Dichloroethane	6 J
1,3-Dichlorobenzene	700
1,4-Dichlorobenzene	2200
Benzene	970
Chlorobenzene	14000
Ethylbenzene	10
Meta- And Para-Xylene *	39
Toluene	18
Vinyl Chloride	14
Xylenes	39
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	110
1-Naphthylamine	160 J
2,4-Dichlorophenol	4 J
2-Chlorophenol	9
2-Naphthylamine	170 J
4-Aminobiphenyl	19
4-Chloroaniline	15 J
Acenaphthene	2 J
Aniline	370
Biphenyl	15
Carbazole	13
Diphenyl Ether	28
Naphthalene	63
N-Nitrosodiphenylamine	1100
O-Toluidine	740 J

G05-M08B	08/02/2017
Analyte	µg/L
Gasses	
Ethane	8.4
Ethene	4.3 J
Methane	5100
Volatile Organic Compounds	
1,2-Dichlorobenzene	17000
1,3-Dichlorobenzene	290
1,4-Dichlorobenzene	1600
Benzene	330
Chlorobenzene	24000
Ethylbenzene	28
Meta- And Para-Xylene *	180
Ortho-Xylene *	24
Toluene	78
Xylenes	210
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	280
1,2-Diphenylhydrazine	120
1-Naphthylamine	160 J
2,4,5-Trichlorophenol	0.7 J
2,4-Dichlorophenol	1
2,4-Dimethylphenol	2 J
2,6-Dinitrotoluene	1
2-Chlorophenol	11
2-Methylnaphthalene	3
2-Methylphenol (O-Cresol)	0.6 J
2-Naphthylamine	140 J
4-Aminobiphenyl	40
4-Chloro-3-Methylphenol	3
4-Chloroaniline	16 J
4-Methylphenol (P-Cresol)	220
Acenaphthene	6
Aniline	6900
Anthracene	0.2 J
Benzidine	75
Benzo(A)Anthracene	0.1 J
Biphenyl	20
Bis(2-Ethylhexyl)Phthalate	2 J
Carbazole	14
Dibenzofuran	1
Diphenyl Ether	61
Naphthalene	100
N-Nitrosodiphenylamine	1900
O-Toluidine	2600 J
Phenanthrene	0.3 J

G05-P03B	08/02/2017
Analyte	µg/L
Gasses	
Ethane	3.5 J
Methane	3000
Volatile Organic Compounds	
1,2-Dichlorobenzene	310
1,3-Dichlorobenzene	170
1,4-Dichlorobenzene	1000
Benzene	740
Chlorobenzene	6600
Ethylbenzene	3 J
Meta- And Para-Xylene *	8
Ortho-Xylene *	4 J
Xylenes	11
Semi-Volatile Organic Compounds	
1-Naphthylamine	35 J
2-Chlorophenol	10
2-Methylnaphthalene	6
2-Naphthylamine	140 J
4-Aminobiphenyl	9
4-Chloroaniline	5 J
Acenaphthene	2
Aniline	9
Anthracene	0.2 J
Benzidine	33 J
Biphenyl	0.7 J
Carbazole	4
Diphenyl Ether	9
Fluoranthene	0.1 J
Fluorene	2
N-Nitrosodiphenylamine	320
O-Toluidine	35 J

H05-M03B	08/02/2017
Analyte	µg/L
Gasses	
Ethane	1.2 J
Methane	10000
Volatile Organic Compounds	
1,2-Dichlorobenzene	130
1,3-Dichlorobenzene	8 J
1,4-Dichlorobenzene	49
Benzene	23
Chlorobenzene	2700
Cumene	9 J
Ethylbenzene	1 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	200 J
2-Chlorophenol	11
2-Naphthylamine	46 J
Acenaphthene	0.5
Naphthalene	8
N-Nitrosodiphenylamine	19
O-Toluidine	4 J

H05-M01B	08/02/2017
Analyte	µg/L
Gasses	
Methane	3300
Volatile Organic Compounds	
1,2-Dichlorobenzene	3 J
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	19
Acetone	7 J
Benzene	13
Chlorobenzene	1400
Cumene	2 J
Ethylbenzene	0.5 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	78 J
2-Chlorophenol	6
2-Naphthylamine	15 J
Acenaphthene	0.4 J
Aniline	2 B
Naphthalene	4
N-Nitrosodiphenylamine	12
O-Toluidine	2 J

F05-M04B	08/01/2017
Analyte	µg/L
Gasses	
Methane	2000
Volatile Organic Compounds	
1,2-Dichlorobenzene	7
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	20
Benzene	5
Chlorobenzene	230
Cumene	8
Ethylbenzene	68
Meta- And Para-Xylene *	15
Ortho-Xylene *	28
Toluene	10
Xylenes	43
Semi-Volatile Organic Compounds	
2-Chlorophenol	0.7 J
2-Methylnaphthalene	2 J
Acenaphthene	53 J
Acenaphthylene	0.5 J
Anthracene	1 J
Biphenyl	1 J
Carbazole	59 J
Dibenzofuran	33 J
Fluorene	45 J
Naphthalene	290 J
N-Nitrosodiphenylamine	5 J
Phenanthrene	10 J

H05-M02B	08/03/2017
Analyte	µg/L
Gasses	
Methane	10000
Volatile Organic Compounds	
1,2-Dichlorobenzene	3 J
1,3-Dichlorobenzene	1 J
1,4-Dichlorobenzene	6
Benzene	2
Chlorobenzene	230
Semi-Volatile Organic Compounds	
1-Naphthylamine	33 J
2-Chlorophenol	2
2-Naphthylamine	16 J
Acenaphthene	3
Aniline	1
Diphenyl Ether	0.7 J
Naphthalene	1
N-Nitrosodiphenylamine	5
O-Toluidine	0.6 J

I05-M03B	08/03/2017
Analyte	µg/L
Gasses	
Ethane	1.3 J
Methane	2600
Volatile Organic Compounds	
1,1-Dichloroethane	62
1,1-Dichloroethene	0.6 J
1,2-Dichlorobenzene	74
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	42
Benzene	13
Carbon Disulfide	17
Chlorobenzene	950
cis-1,2 Dichloroethene	2
Cumene	4 J
Cyclohexane	4 J
Ethyl Chloride	2
Ethylbenzene	21
Meta- And Para-Xylene *	1
Ortho-Xylene *	70
Toluene	3
trans-1,2-Dichloroethene	0.9 J
trans-1,3-Dichloropropene	4
Trichloroethene	9
Xylenes	71
Semi-Volatile Organic Compounds	
1-Naphthylamine	21 J
2,4-Dimethylphenol	3 J
2-Chlorophenol	2
2-Methylphenol (O-Cresol)	1
2-Naphthylamine	5 J
Acenaphthene	13
Aniline	9
Diphenyl Ether	78
Naphthalene	3
N-Nitrosodiphenylamine	9
O-Toluidine	3 J

F06-M02B	07/14/2017
Analyte	µg/L
Gasses	
Ethane	4.0 J
Methane	2600
Volatile Organic Compounds	
1,2-Dichlorobenzene	2
Chlorobenzene	9
Semi-Volatile Organic Compounds	
1-Naphthylamine	9 J
Acenaphthene	33
Acenaphthylene	0.2 J
Anthracene	0.4 J
Benzo(G,H,I)Perylene	0.7
Dibenz(A,H)Anthracene	0.7
Diphenyl Ether	2
Fluoranthene	4
Fluorene	10
Indeno (1,2,3-CD) Pyrene	0.6
Naphthalene	0.1 J
Pyrene	2

F05-M05B	08/01/2017
Analyte	µg/L
Gasses	
Ethane	9.8
Methane	1700
Volatile Organic Compounds	
1,2-Dichlorobenzene	42
1,2-Dichloroethane	0.9 J
1,3-Dichlorobenzene	9
1,4-Dichlorobenzene	48
Benzene	15
Chlorobenzene	650
cis-1,2 Dichloroethene	0.6 J
Trichloroethene	0.5 J
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	3 J
1-Naphthylamine	180 J
2-Chlorophenol	1
2-Methylnaphthalene	0.2 J
2-Naphthylamine	13 J
4-Aminobiphenyl	5
Acenaphthene	5
N-Nitrosodiphenylamine	12

F05-M03B	08/03/2017
Analyte	µg/L
Gasses	
Methane	16000

G04-M02B	08/03/2017
Analyte	µg/L
Gasses	
Methane	91
Volatile Organic Compounds	
1,2-Dichlorobenzene	5
1,2-Dichloroethane	0.5 J
1,4-Dichlorobenzene	3 J
Chlorobenzene	34
cis-1,2 Dichloroethene	0.9 J
Vinyl Chloride	0.5 J
Semi-Volatile Organic Compounds	
N-Nitrosodiphenylamine	0.8 J

H04-M02B	08/03/2017	DUP
Analyte	µg/L	µg/L
Gasses		
Methane	280	270
Semi-Volatile Organic Compounds		
Caprolactam	7 J	<5

H05-M04B	08/02/2017
Analyte	µg/L
Gasses	
Ethane	1.4 J
Methane	16000
Volatile Organic Compounds	
1,1-Dichloroethane	0.8 J
1,2-Dichlorobenzene	6
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	13
Benzene	4
Chlorobenzene	790
Methyl Tertiary Butyl Ether	1
Semi-Volatile Organic Compounds	
1-Naphthylamine	38 J
2-Chlorophenol	3
2-Naphthylamine	13 J
Acenaphthene	5
Aniline	1 B
Anthracene	0.2 J
Diphenyl Ether	3
Naphthalene	2
N-Nitrosodiphenylamine	3
O-Toluidine	0.6 J

J04-M01B	07/13/2017
Analyte	µg/L
NO DETECTS	

LEGEND

B AQUIFER WELL

Notes:

* = Meta-, Para-, Ortho-Xylenes are not associated with NJGWIIA criteria however, total Xylene results were compared to NJGWIIA criteria.

Groundwater samples collected between July 13-14 and August 1-3, 2017.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

B = Comparable detection in lab or field blank.

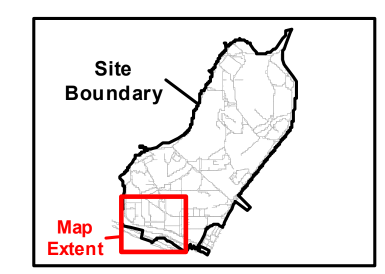
Yellow highlighted cell indicates exceedance of NJ ClassIIA 11/09 criteria.

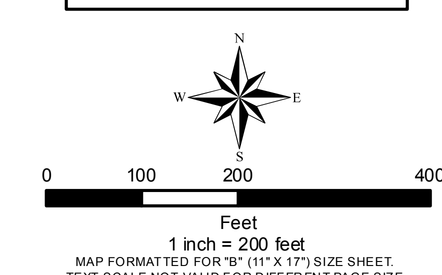
Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet





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SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - AUGUST 2017

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2016
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 17002	PROJECT NUMBER: 60532795
DESIGNED BY: S. MORGAN	DATE: 10/26/2017
DRAWN BY: M. LAYTON	FIGURE NUMBER: 4
DATA QUALITY CHECK BY: K. DAVIS	

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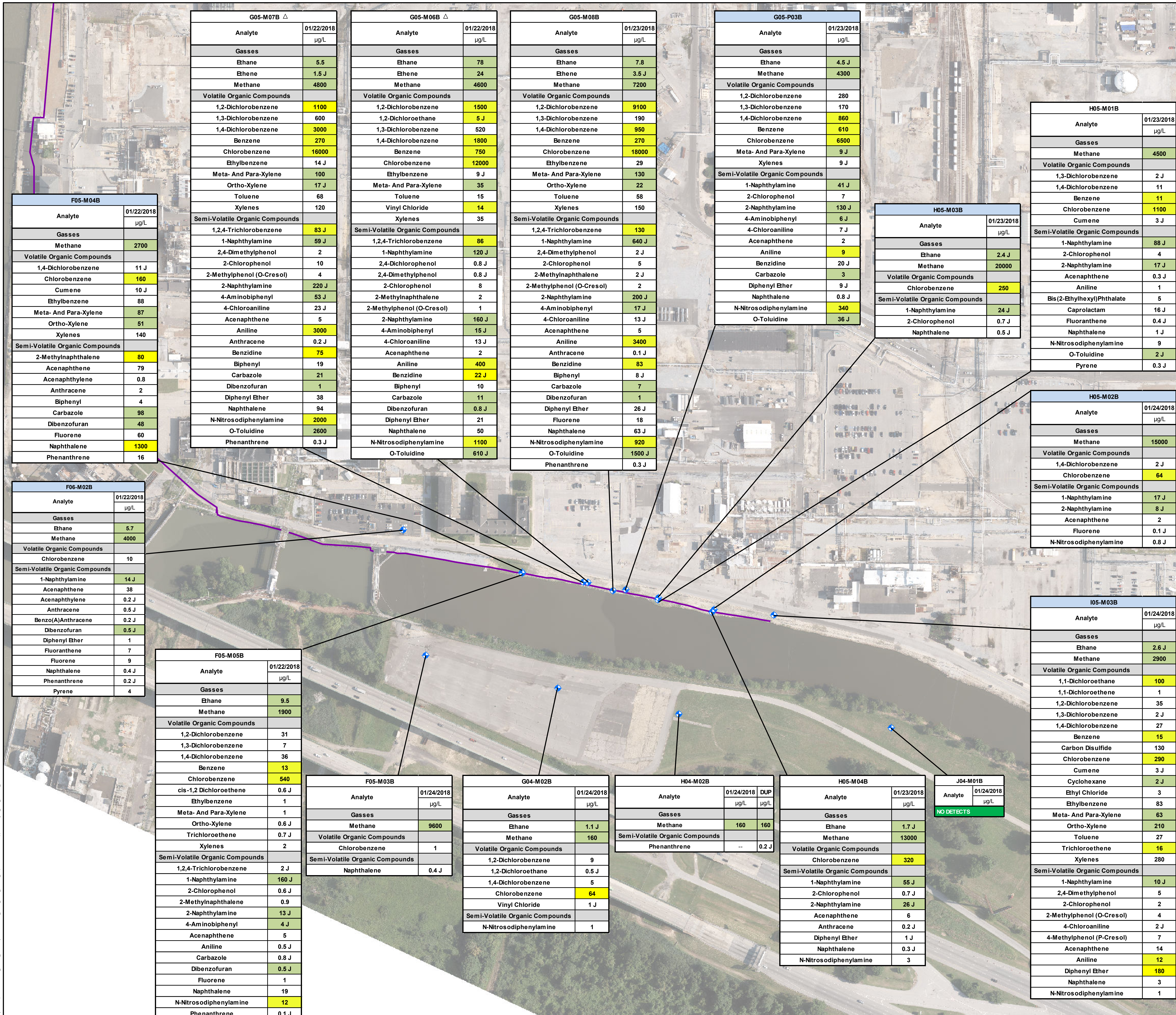


G05-M07B △

Analyte	01/22/2018
	µg/L
Gasses	
Ethane	5.5
Ethene	1.5 J
Methane	4800
Volatile Organic Compounds	
1,2-Dichlorobenzene	1100
1,3-Dichlorobenzene	600
1,4-Dichlorobenzene	3000
Benzene	270
Chlorobenzene	16000
Ethylbenzene	14 J
Meta- And Para-Xylene	100
Ortho-Xylene	17 J
Toluene	68
Xylenes	120
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	83 J
1-Naphthylamine	59 J
2,4-Dimethylphenol	2
2-Chlorophenol	10
2-Methylphenol (O-Cresol)	4
2-Naphthylamine	220 J
4-Aminobiphenyl	53 J
4-Chloroaniline	23 J
Acenaphthene	5
Aniline	3000
Anthracene	0.2 J
Benzidine	75
Biphenyl	19
Carbazole	21
Dibenzofuran	1
Diphenyl Ether	38
Naphthalene	94
N-Nitrosodiphenylamine	2000
O-Toluidine	2600
Phenanthrene	0.3 J

G05-M06B △

Analyte	01/22/2018
	µg/L
Gasses	
Ethane	78
Ethene	24
Methane	4600
Volatile Organic Compounds	
1,2-Dichlorobenzene	1500
1,2-Dichloroethane	5 J
1,3-Dichlorobenzene	520
1,4-Dichlorobenzene	1800
Benzene	750
Chlorobenzene	12000
Ethylbenzene	9 J
Meta- And Para-Xylene	35
Toluene	15
Vinyl Chloride	14
Xylenes	35
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	86
1-Naphthylamine	120 J
2,4-Dichlorophenol	0.8 J
2,4-Dimethylphenol	0.8 J
2-Chlorophenol	8
2-Methylnaphthalene	2
2-Methylphenol (O-Cresol)	1
2-Naphthylamine	160 J
4-Aminobiphenyl	15 J
4-Chloroaniline	13 J
Acenaphthene	2
Aniline	400
Benzidine	22 J
Biphenyl	10
Carbazole	11
Dibenzofuran	0.8 J
Diphenyl Ether	21
Naphthalene	50
N-Nitrosodiphenylamine	1100
O-Toluidine	610 J

G05-M08B

Analyte	01/23/2018
	µg/L
Gasses	
Ethane	7.8
Ethene	3.5 J
Methane	7200
Volatile Organic Compounds	
1,2-Dichlorobenzene	9100
1,3-Dichlorobenzene	190
1,4-Dichlorobenzene	950
Benzene	270
Chlorobenzene	18000
Ethylbenzene	29
Meta- And Para-Xylene	130
Ortho-Xylene	22
Toluene	58
Xylenes	150
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	130
1-Naphthylamine	640 J
2,4-Dimethylphenol	2 J
2-Chlorophenol	5
2-Methylnaphthalene	2 J
2-Methylphenol (O-Cresol)	2
2-Naphthylamine	200 J
4-Aminobiphenyl	17 J
4-Chloroaniline	13 J
Acenaphthene	5
Aniline	3400
Anthracene	0.1 J
Benzidine	83
Biphenyl	8 J
Carbazole	7
Dibenzofuran	1
Diphenyl Ether	26 J
Fluorene	18
Naphthalene	63 J
N-Nitrosodiphenylamine	920
O-Toluidine	1500 J
Phenanthrene	0.3 J

G05-P03B

Analyte	01/23/2018
	µg/L
Gasses	
Ethane	4.5 J
Methane	4300
Volatile Organic Compounds	
1,2-Dichlorobenzene	280
1,3-Dichlorobenzene	170
1,4-Dichlorobenzene	860
Benzene	610
Chlorobenzene	6500
Meta- And Para-Xylene	9 J
Xylenes	9 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	41 J
2-Chlorophenol	7
2-Naphthylamine	130 J
4-Aminobiphenyl	6 J
4-Chloroaniline	7 J
Acenaphthene	2
Aniline	9
Benzidine	20 J
Carbazole	3
Diphenyl Ether	9 J
Naphthalene	0.8 J
N-Nitrosodiphenylamine	340
O-Toluidine	36 J

F05-M04B

Analyte	01/22/2018
	µg/L
Gasses	
Methane	2700
Volatile Organic Compounds	
1,4-Dichlorobenzene	11 J
Chlorobenzene	160
Cumene	10 J
Ethylbenzene	88
Meta- And Para-Xylene	87
Ortho-Xylene	51
Xylenes	140
Semi-Volatile Organic Compounds	
2-Methylnaphthalene	80
Acenaphthene	79
Acenaphthylene	0.8
Anthracene	2
Biphenyl	4
Carbazole	98
Dibenzofuran	48
Fluorene	60
Naphthalene	1300
Phenanthrene	16

H05-M01B

Analyte	01/23/2018
	µg/L
Gasses	
Methane	4500
Volatile Organic Compounds	
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	11
Benzene	11
Chlorobenzene	1100
Cumene	3 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	88 J
2-Chlorophenol	4
2-Naphthylamine	17 J
Acenaphthene	0.3 J
Aniline	1
Bis(2-Ethylhexyl)Phthalate	5
Caprolactam	16 J
Fluoranthene	0.4 J
Naphthalene	1 J
N-Nitrosodiphenylamine	9
O-Toluidine	2 J
Pyrene	0.3 J

H05-M03B

Analyte	01/23/2018
	µg/L
Gasses	
Ethane	2.4 J
Methane	20000
Volatile Organic Compounds	
Chlorobenzene	250
Semi-Volatile Organic Compounds	
1-Naphthylamine	24 J
2-Chlorophenol	0.7 J
Naphthalene	0.5 J

H05-M02B

Analyte	01/24/2018
	µg/L
Gasses	
Methane	15000
Volatile Organic Compounds	
1,4-Dichlorobenzene	2 J
Chlorobenzene	64
Semi-Volatile Organic Compounds	
1-Naphthylamine	17 J
2-Naphthylamine	8 J
Acenaphthene	2
Fluorene	0.1 J
N-Nitrosodiphenylamine	0.8 J

F06-M02B

Analyte	01/22/2018
	µg/L
Gasses	
Ethane	5.7
Methane	4000
Volatile Organic Compounds	
Chlorobenzene	10
Semi-Volatile Organic Compounds	
1-Naphthylamine	14 J
Acenaphthene	38
Acenaphthylene	0.2 J
Anthracene	0.5 J
Benzo(A)Anthracene	0.2 J
Dibenzofuran	0.5 J
Diphenyl Ether	1
Fluoranthene	7
Fluorene	9
Naphthalene	0.4 J
Phenanthrene	0.2 J
Pyrene	4

F05-M05B

Analyte	01/22/2018
	µg/L
Gasses	
Ethane	9.5
Methane	1900
Volatile Organic Compounds	
1,2-Dichlorobenzene	31
1,3-Dichlorobenzene	7
1,4-Dichlorobenzene	36
Benzene	13
Chlorobenzene	540
cis-1,2 Dichloroethene	0.6 J
Ethylbenzene	1
Meta- And Para-Xylene	1
Ortho-Xylene	0.6 J
Trichloroethene	0.7 J
Xylenes	2
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	2 J
1-Naphthylamine	160 J
2-Chlorophenol	0.6 J
2-Methylnaphthalene	0.9
2-Naphthylamine	13 J
4-Aminobiphenyl	4 J
Acenaphthene	5
Aniline	0.5 J
Carbazole	0.8 J
Dibenzofuran	0.5 J
Fluorene	1
Naphthalene	19
N-Nitrosodiphenylamine	12
Phenanthrene	0.1 J

F05-M03B

Analyte	01/24/2018
	µg/L
Gasses	
Methane	9600
Volatile Organic Compounds	
Chlorobenzene	1
Semi-Volatile Organic Compounds	
Naphthalene	0.4 J

G04-M02B

Analyte	01/24/2018
	µg/L
Gasses	
Ethane	1.1 J
Methane	160
Volatile Organic Compounds	
1,2-Dichlorobenzene	9
1,2-Dichloroethane	0.5 J
1,4-Dichlorobenzene	5
Chlorobenzene	64
Vinyl Chloride	1 J
Semi-Volatile Organic Compounds	
N-Nitrosodiphenylamine	1

H04-M02B

Analyte	01/24/2018	DUP
	µg/L	µg/L
Gasses		
Methane	160	160
Semi-Volatile Organic Compounds		
Phenanthrene	--	0.2 J

H05-M04B

Analyte	01/23/2018
	µg/L
Gasses	
Ethane	1.7 J
Methane	13000
Volatile Organic Compounds	
Chlorobenzene	320
Semi-Volatile Organic Compounds	
1-Naphthylamine	55 J
2-Chlorophenol	0.7 J
2-Naphthylamine	26 J
Acenaphthene	6
Anthracene	0.2 J
Diphenyl Ether	1 J
Naphthalene	0.3 J
N-Nitrosodiphenylamine	3

J04-M01B

Analyte	01/24/2018
	µg/L
NO DETECTS	

I05-M03B

Analyte	01/24/2018
	µg/L
Gasses	
Ethane	2.6 J
Methane	2900
Volatile Organic Compounds	
1,1-Dichloroethane	100
1,1-Dichloroethene	1
1,2-Dichlorobenzene	35
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	27
Benzene	15
Carbon Disulfide	130
Chlorobenzene	290
Cumene	3 J
Cyclohexane	2 J
Ethyl Chloride	3
Ethylbenzene	83
Meta- And Para-Xylene	63
Ortho-Xylene	210
Toluene	27
Trichloroethene	16
Xylenes	280
Semi-Volatile Organic Compounds	
1-Naphthylamine	10 J
2,4-Dimethylphenol	5
2-Chlorophenol	2
2-Methylphenol (O-Cresol)	4
4-Chloroaniline	2 J
4-Methylphenol (P-Cresol)	7
Acenaphthene	14
Aniline	12
Diphenyl Ether	180
Naphthalene	3
N-Nitrosodiphenylamine	1

LEGEND

B AQUIFER WELL

Notes:

* = Meta-, Para-, Ortho-Xylenes are not associated with NJGWIIA criteria however, total Xylene results were compared to NJGWIIA criteria.

△ = Angled well

Groundwater samples collected between January 22-24, 2018.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

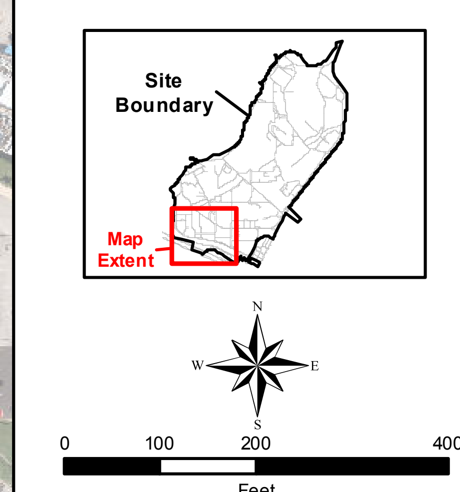
Yellow highlighted cell indicates exceedance of NJ ClassIIA 11/09 criteria.

Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet



1 inch = 200 feet

MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET. TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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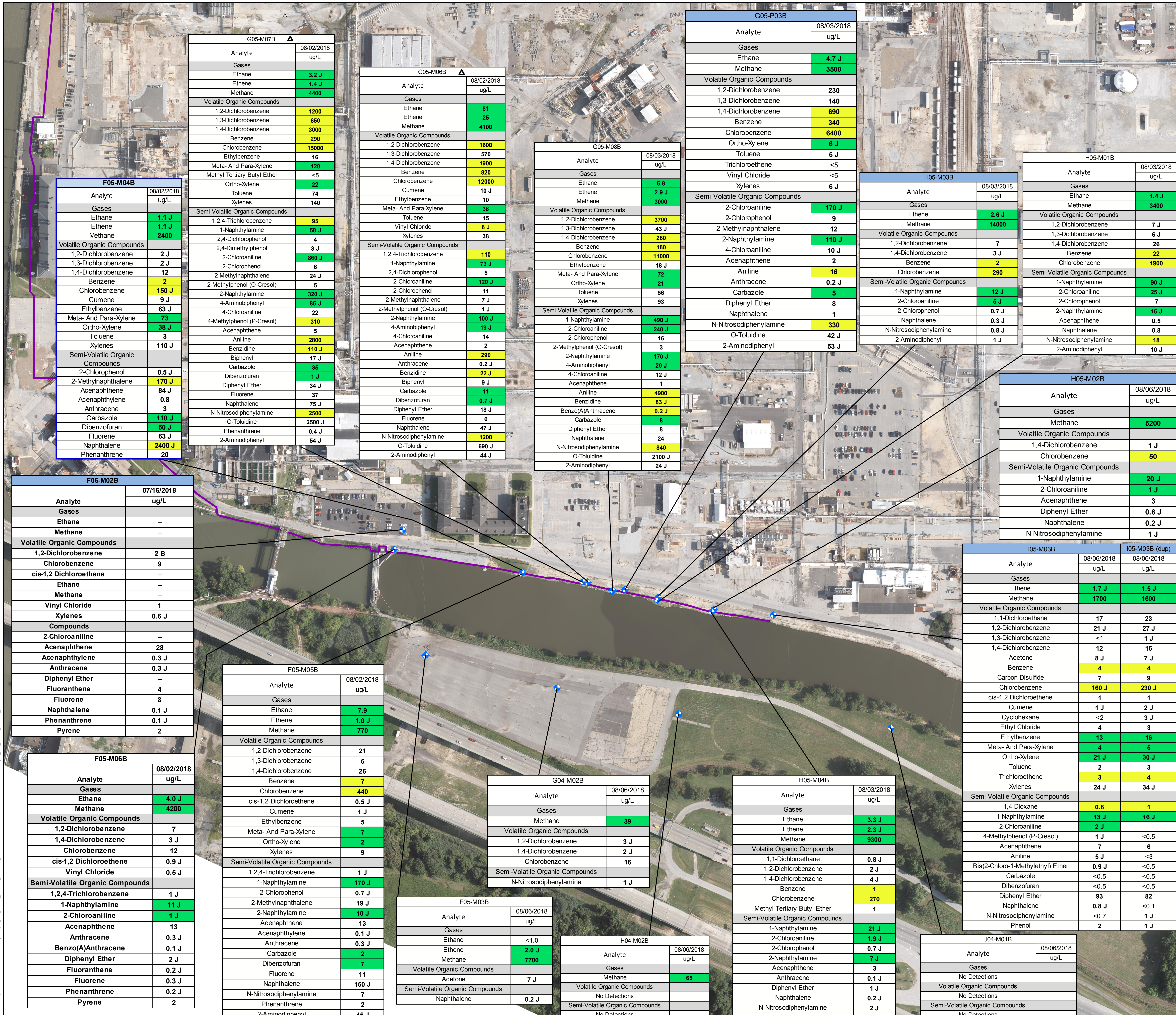
SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - JANUARY 2018

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2018
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18002	PROJECT NUMBER: 60554934
DESIGNED BY: P. CHEN	DATE: 4/9/2018
DRAWN BY: M. LAYTON	FIGURE NUMBER: 3
DATA QUALITY CHECK BY: A. TREGLIA	



F05-M04B

Analyte	08/02/2018 ug/L
Gases	
Ethane	1.1 J
Ethene	1.1 J
Methane	2400
Volatile Organic Compounds	
1,2-Dichlorobenzene	2 J
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	12
Benzene	2
Chlorobenzene	150 J
Cumene	9 J
Ethylbenzene	63 J
Meta- And Para-Xylene	73
Ortho-Xylene	38 J
Toluene	3
Xylenes	110 J
Semi-Volatile Organic Compounds	
2-Chlorophenol	0.5 J
2-Methylnaphthalene	170 J
Acenaphthene	84 J
Acenaphthylene	0.8
Anthracene	3
Carbazole	110 J
Dibenzofuran	50 J
Fluorene	63 J
Naphthalene	2400 J
Phenanthrene	20

G05-M07B △

Analyte	08/02/2018 ug/L
Gases	
Ethane	3.2 J
Ethene	1.4 J
Methane	4400
Volatile Organic Compounds	
1,2-Dichlorobenzene	1200
1,3-Dichlorobenzene	650
1,4-Dichlorobenzene	3000
Benzene	290
Chlorobenzene	15000
Ethylbenzene	16
Meta- And Para-Xylene	120
Methyl Tertiary Butyl Ether	<5
Ortho-Xylene	22
Toluene	74
Xylenes	140
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	95
1-Naphthylamine	58 J
2,4-Dichlorophenol	4
2,4-Dimethylphenol	3 J
2-Chloroaniline	860 J
2-Chlorophenol	6
2-Methylnaphthalene	24 J
2-Methylphenol (O-Cresol)	5
2-Naphthylamine	320 J
4-Aminobiphenyl	85 J
4-Chloroaniline	22
4-Methylphenol (P-Cresol)	310
Acenaphthene	5
Aniline	2800
Benzidine	110 J
Biphenyl	17 J
Carbazole	35
Dibenzofuran	1 J
Diphenyl Ether	34 J
Fluorene	37
Naphthalene	75 J
N-Nitrosodiphenylamine	2500
O-Toluidine	2500 J
Phenanthrene	0.4 J
2-Aminodiphenyl	54 J

G05-M06B △

Analyte	08/02/2018 ug/L
Gases	
Ethane	81
Ethene	25
Methane	4100
Volatile Organic Compounds	
1,2-Dichlorobenzene	1600
1,3-Dichlorobenzene	570
1,4-Dichlorobenzene	1900
Benzene	820
Chlorobenzene	12000
Cumene	10 J
Ethylbenzene	10
Meta- And Para-Xylene	38
Toluene	15
Vinyl Chloride	8 J
Xylenes	38
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	110
1-Naphthylamine	73 J
2,4-Dichlorophenol	5
2-Chloroaniline	120 J
2-Chlorophenol	11
2-Methylnaphthalene	7 J
2-Methylphenol (O-Cresol)	1 J
2-Naphthylamine	100 J
4-Aminobiphenyl	19 J
4-Chloroaniline	14
Acenaphthene	2
Aniline	290
Anthracene	0.2 J
Benzidine	22 J
Biphenyl	9 J
Carbazole	11
Dibenzofuran	0.7 J
Diphenyl Ether	18 J
Fluorene	6
Naphthalene	47 J
N-Nitrosodiphenylamine	1200
O-Toluidine	690 J
2-Aminodiphenyl	44 J

G05-M08B

Analyte	08/03/2018 ug/L
Gases	
Ethane	5.8
Ethene	2.9 J
Methane	3000
Volatile Organic Compounds	
1,2-Dichlorobenzene	3700
1,3-Dichlorobenzene	43 J
1,4-Dichlorobenzene	280
Benzene	180
Chlorobenzene	11000
Ethylbenzene	18 J
Meta- And Para-Xylene	72
Ortho-Xylene	21
Toluene	56
Xylenes	93
Semi-Volatile Organic Compounds	
1-Naphthylamine	490 J
2-Chloroaniline	240 J
2-Chlorophenol	16
2-Methylphenol (O-Cresol)	3
2-Naphthylamine	170 J
4-Aminobiphenyl	20 J
4-Chloroaniline	12 J
Acenaphthene	1
Aniline	4900
Benzidine	83 J
Benzo(A)Anthracene	0.2 J
Carbazole	8
Diphenyl Ether	8
Naphthalene	24
N-Nitrosodiphenylamine	840
O-Toluidine	2100 J
2-Aminodiphenyl	24 J

G05-P03B

Analyte	08/03/2018 ug/L
Gases	
Ethane	4.7 J
Methane	3500
Volatile Organic Compounds	
1,2-Dichlorobenzene	230
1,3-Dichlorobenzene	140
1,4-Dichlorobenzene	690
Benzene	340
Chlorobenzene	6400
Ortho-Xylene	6 J
Toluene	5 J
Trichloroethene	<5
Vinyl Chloride	<5
Xylenes	6 J
Semi-Volatile Organic Compounds	
2-Chloroaniline	170 J
2-Chlorophenol	9
2-Methylnaphthalene	12
2-Naphthylamine	110 J
4-Chloroaniline	10 J
Acenaphthene	2
Aniline	16
Anthracene	0.2 J
Carbazole	5
Diphenyl Ether	8
Naphthalene	1
N-Nitrosodiphenylamine	330
O-Toluidine	42 J
2-Aminodiphenyl	53 J

H05-M03B

Analyte	08/03/2018 ug/L
Gases	
Ethene	2.6 J
Methane	14000
Volatile Organic Compounds	
1,2-Dichlorobenzene	7
1,4-Dichlorobenzene	3 J
Benzene	2
Chlorobenzene	290
Semi-Volatile Organic Compounds	
1-Naphthylamine	12 J
2-Chloroaniline	5 J
2-Chlorophenol	0.7 J
Naphthalene	0.3 J
N-Nitrosodiphenylamine	0.8 J
2-Aminodiphenyl	1 J

H05-M01B

Analyte	08/03/2018 ug/L
Gases	
Ethane	1.4 J
Methane	3400
Volatile Organic Compounds	
1,2-Dichlorobenzene	7 J
1,3-Dichlorobenzene	6 J
1,4-Dichlorobenzene	26
Benzene	22
Chlorobenzene	1900
Semi-Volatile Organic Compounds	
1-Naphthylamine	90 J
2-Chloroaniline	25 J
2-Chlorophenol	7
2-Naphthylamine	16 J
Acenaphthene	0.5
Naphthalene	0.8
N-Nitrosodiphenylamine	18
2-Aminodiphenyl	10 J

H05-M02B

Analyte	08/06/2018 ug/L
Gases	
Methane	5200
Volatile Organic Compounds	
1,4-Dichlorobenzene	1 J
Chlorobenzene	50
Semi-Volatile Organic Compounds	
1-Naphthylamine	20 J
2-Chloroaniline	1 J
Acenaphthene	3
Diphenyl Ether	0.6 J
Naphthalene	0.2 J
N-Nitrosodiphenylamine	1 J

F06-M02B

Analyte	07/16/2018 ug/L
Gases	
Ethane	--
Methane	--
Volatile Organic Compounds	
1,2-Dichlorobenzene	2 B
Chlorobenzene	9
cis-1,2 Dichloroethene	--
Ethane	--
Methane	--
Vinyl Chloride	1
Xylenes	0.6 J
Compounds	
2-Chloroaniline	--
Acenaphthene	28
Acenaphthylene	0.3 J
Anthracene	0.3 J
Diphenyl Ether	--
Fluoranthene	4
Fluorene	8
Naphthalene	0.1 J
Phenanthrene	0.1 J
Pyrene	2

I05-M03B

Analyte	I05-M03B 08/06/2018 ug/L	I05-M03B (dup) 08/06/2018 ug/L
Gases		
Ethene	1.7 J	1.5 J
Methane	1700	1600
Volatile Organic Compounds		
1,1-Dichloroethane	17	23
1,2-Dichlorobenzene	21 J	27 J
1,3-Dichlorobenzene	<1	1 J
1,4-Dichlorobenzene	12	15
Acetone	8 J	7 J
Benzene	4	4
Carbon Disulfide	7	9
Chlorobenzene	160 J	230 J
cis-1,2 Dichloroethene	1	1
Cumene	1 J	2 J
Cyclohexane	<2	3 J
Ethyl Chloride	4	3
Ethylbenzene	13	16
Meta- And Para-Xylene	4	5
Ortho-Xylene	21 J	30 J
Toluene	2	3
Trichloroethene	3	4
Xylenes	24 J	34 J
Semi-Volatile Organic Compounds		
1,4-Dioxane	0.8	1
1-Naphthylamine	13 J	16 J
2-Chloroaniline	2 J	
4-Methylphenol (P-Cresol)	1 J	<0.5
Acenaphthene	7	6
Aniline	5 J	<3
Bis(2-Chloro-1-Methylethyl) Ether	0.9 J	<0.5
Carbazole	<0.5	<0.5
Dibenzofuran	<0.5	<0.5
Diphenyl Ether	93	82
Naphthalene	0.8 J	<0.1
N-Nitrosodiphenylamine	<0.7	1 J
Phenol	2	1 J

F05-M06B

Analyte	08/02/2018 ug/L
Gases	
Ethane	4.0 J
Methane	4200
Volatile Organic Compounds	
1,2-Dichlorobenzene	7
1,4-Dichlorobenzene	3 J
Chlorobenzene	12
cis-1,2 Dichloroethene	0.9 J
Vinyl Chloride	0.5 J
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	1 J
1-Naphthylamine	11 J
2-Chloroaniline	1 J
Acenaphthene	13
Anthracene	0.3 J
Benzo(A)Anthracene	0.1 J
Diphenyl Ether	2 J
Fluoranthene	0.2 J
Fluorene	0.3 J
Phenanthrene	0.2 J
Pyrene	2

F05-M05B

Analyte	08/02/2018 ug/L
Gases	
Ethane	7.9
Ethene	1.0 J
Methane	770
Volatile Organic Compounds	
1,2-Dichlorobenzene	21
1,3-Dichlorobenzene	5
1,4-Dichlorobenzene	26
Benzene	7
Chlorobenzene	440
cis-1,2 Dichloroethene	0.5 J
Cumene	1 J
Ethylbenzene	5
Meta- And Para-Xylene	7
Ortho-Xylene	2
Xylenes	9
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	1 J
1-Naphthylamine	170 J
2-Chlorophenol	0.7 J
2-Methylnaphthalene	19 J
2-Naphthylamine	10 J
Acenaphthene	13
Acenaphthylene	0.1 J
Anthracene	0.3 J
Carbazole	2
Dibenzofuran	7
Fluorene	11
Naphthalene	150 J
N-Nitrosodiphenylamine	7
Phenanthrene	2
2-Aminodiphenyl	45 J

G04-M02B

Analyte	08/06/2018 ug/L
Gases	
Methane	39
Volatile Organic Compounds	
1,2-Dichlorobenzene	3 J
1,4-Dichlorobenzene	2 J
Chlorobenzene	16
Semi-Volatile Organic Compounds	
N-Nitrosodiphenylamine	1 J

F05-M03B

Analyte	08/06/2018 ug/L
Gases	
Ethane	<1.0
Ethene	2.0 J
Methane	7700
Volatile Organic Compounds	
Acetone	7 J
Semi-Volatile Organic Compounds	
Naphthalene	0.2 J

H04-M02B

Analyte	08/06/2018 ug/L
Gases	
Methane	65
Volatile Organic Compounds	
No Detections	
Semi-Volatile Organic Compounds	
No Detections	

H05-M04B

Analyte	08/03/2018 ug/L
Gases	
Ethane	3.3 J
Ethene	2.3 J
Methane	9300
Volatile Organic Compounds	
1,1-Dichloroethane	0.8 J
1,2-Dichlorobenzene	2 J
1,4-Dichlorobenzene	4 J
Benzene	1
Chlorobenzene	270
Methyl Tertiary Butyl Ether	1
Semi-Volatile Organic Compounds	
1-Naphthylamine	21 J
2-Chloroaniline	1.9 J
2-Chlorophenol	0.7 J
2-Naphthylamine	7 J
Acenaphthene	3
Anthracene	0.1 J
Diphenyl Ether	1 J
Naphthalene	0.2 J
N-Nitrosodiphenylamine	2 J
2-Aminodiphenyl	1.2 J

J04-M01B

Analyte	08/06/2018 ug/L
Gases	
No Detections	
Volatile Organic Compounds	
No Detections	
Semi-Volatile Organic Compounds	
No Detections	

C:\Users\matt.layton\Documents\ArcGIS\Packages\Fig03_GW_Results_Jan2018_20181009_6CF2A4D4-83DB-4440-8E28-E952E787CCD8\v104\Fig03_GW_Results_Jan2018_20181009.mxd

LEGEND

B AQUIFER WELL

Notes:

* = Meta-, Para-, Ortho-Xylenes are not associated with NJGWIIA criteria however, total Xylene results were compared to NJGWIIA criteria.

△ = Angled well
- - = Parameter not analyzed

Groundwater samples collected on July 16 and August 2 though 6, 2018.

Well name in blue highlight indicates location is upgradient of the SPB.

J = Analyte present. Reported value may not be accurate or precise.

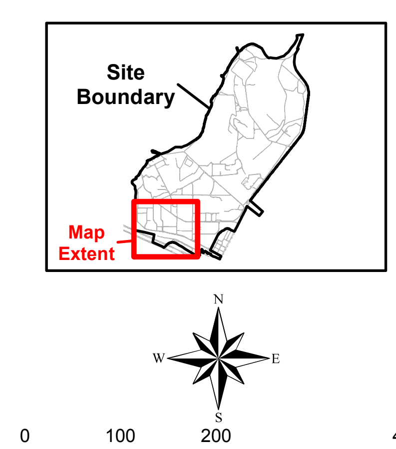
Yellow highlighted cell indicates exceedance of NJ ClassIIA 1/2018 criteria.

Light green cell indicates detection but no criteria available.

Wells G05-M06B and G06-M07B are angled wells whose screens sample groundwater from beneath Salem Canal.

Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet



1 inch = 200 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

AECOM
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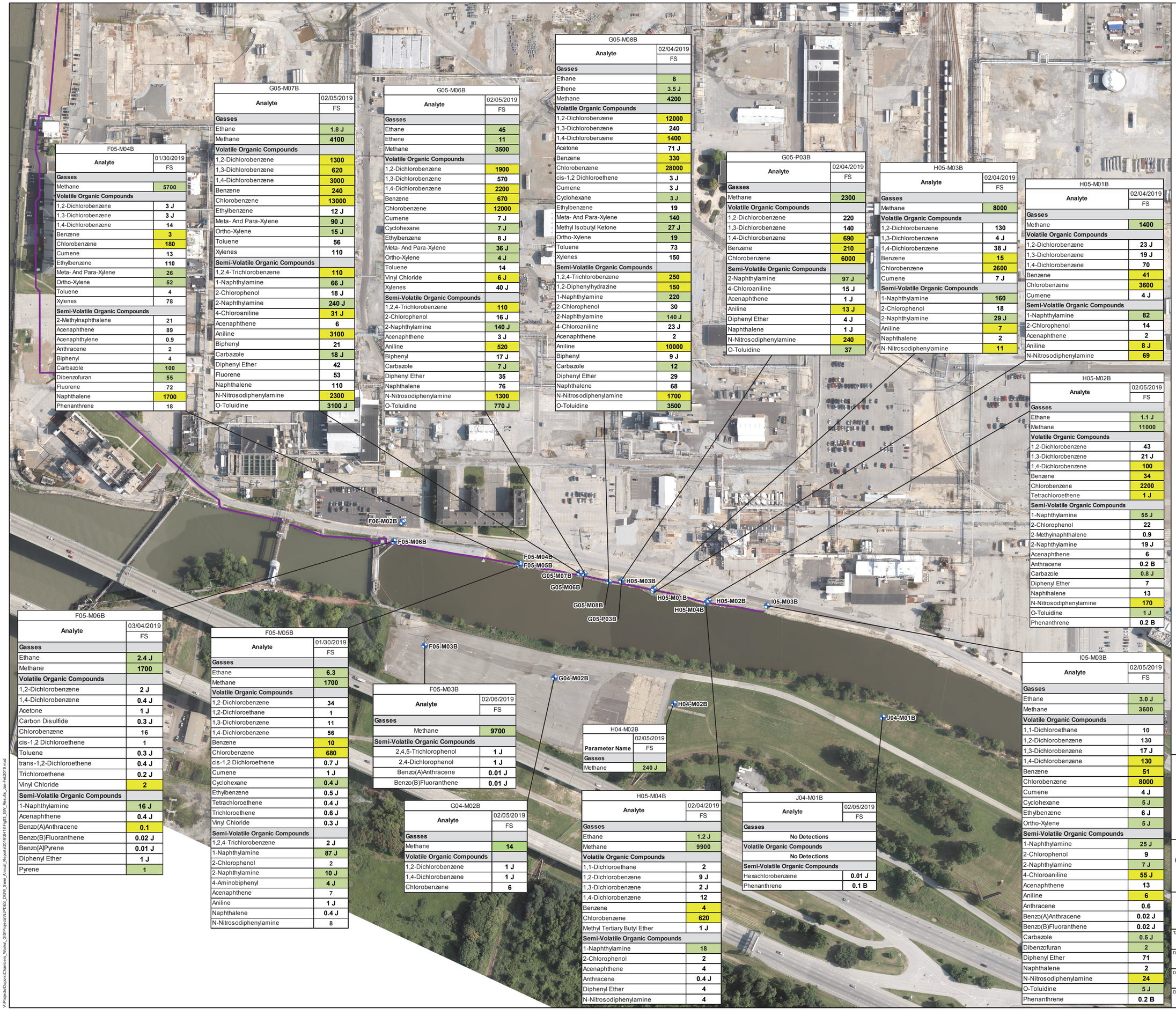
4051 Ogletown Road
Newark, DE 19713

SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - AUGUST 2018

SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2018
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

TASK NUMBER: 18002	PROJECT NUMBER: 60554934
DESIGNED BY: P. CHEN	DATE: 10/9/2018
DRAWN BY: GDS	FIGURE NUMBER: 3
DATA QUALITY CHECK BY: S. MORGAN	



F05-M04B	
Analyte	01/30/2019
	FS
Gasses	
Methane	5700
Volatile Organic Compounds	
1,2-Dichlorobenzene	3 J
1,3-Dichlorobenzene	3 J
1,4-Dichlorobenzene	14
Benzene	3
Chlorobenzene	180
Cumene	13
Ethylbenzene	110
Meta- And Para-Xylene	26
Ortho-Xylene	52
Toluene	4
Xylenes	78
Semi-Volatile Organic Compounds	
2-Methylnaphthalene	21
Acenaphthene	89
Acenaphthylene	0.9
Anthracene	2
Biphenyl	4
Carbazole	100
Dibenzofuran	55
Fluorene	72
Naphthalene	1700
Phenanthrene	18

G05-M07B	
Analyte	02/05/2019
	FS
Gasses	
Ethane	1.8 J
Methane	4100
Volatile Organic Compounds	
1,2-Dichlorobenzene	1300
1,3-Dichlorobenzene	620
1,4-Dichlorobenzene	3000
Benzene	240
Chlorobenzene	13000
Ethylbenzene	12 J
Meta- And Para-Xylene	90 J
Ortho-Xylene	15 J
Toluene	56
Xylenes	110
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	110
1-Naphthylamine	66 J
2-Chlorophenol	18 J
2-Naphthylamine	240 J
4-Chloroaniline	31 J
Acenaphthene	6
Aniline	3100
Biphenyl	21
Carbazole	18 J
Diphenyl Ether	42
Fluorene	53
Naphthalene	110
N-Nitrosodiphenylamine	2300
O-Toluidine	3100 J

G05-M06B	
Analyte	02/05/2019
	FS
Gasses	
Ethane	45
Ethene	11
Methane	3500
Volatile Organic Compounds	
1,2-Dichlorobenzene	1900
1,3-Dichlorobenzene	570
1,4-Dichlorobenzene	2200
Benzene	670
Chlorobenzene	12000
Cumene	7 J
Cyclohexane	7 J
Ethylbenzene	8 J
Meta- And Para-Xylene	36 J
Ortho-Xylene	4 J
Toluene	14
Vinyl Chloride	6 J
Xylenes	40 J
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	110
2-Chlorophenol	16 J
2-Naphthylamine	140 J
Acenaphthene	3 J
Aniline	520
Biphenyl	17 J
Carbazole	7 J
Diphenyl Ether	35
Naphthalene	76
N-Nitrosodiphenylamine	1300
O-Toluidine	770 J

G05-M08B	
Analyte	02/04/2019
	FS
Gasses	
Ethane	8
Ethene	3.5 J
Methane	4200
Volatile Organic Compounds	
1,2-Dichlorobenzene	12000
1,3-Dichlorobenzene	240
1,4-Dichlorobenzene	1400
Acetone	71 J
Benzene	330
Chlorobenzene	28000
cis-1,2 Dichloroethene	3 J
Cumene	3 J
Cyclohexane	3 J
Ethylbenzene	19
Meta- And Para-Xylene	140
Methyl Isobutyl Ketone	27 J
Ortho-Xylene	19
Toluene	73
Xylenes	150
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	250
1,2-Diphenylhydrazine	150
1-Naphthylamine	220
2-Chlorophenol	30
2-Naphthylamine	140 J
4-Chloroaniline	23 J
Acenaphthene	2
Aniline	10000
Biphenyl	9 J
Carbazole	12
Diphenyl Ether	29
Naphthalene	68
N-Nitrosodiphenylamine	1700
O-Toluidine	3500

G05-P03B	
Analyte	02/04/2019
	FS
Gasses	
Methane	2300
Volatile Organic Compounds	
1,2-Dichlorobenzene	220
1,3-Dichlorobenzene	140
1,4-Dichlorobenzene	690
Benzene	210
Chlorobenzene	6000
Semi-Volatile Organic Compounds	
2-Naphthylamine	97 J
4-Chloroaniline	15 J
Acenaphthene	1 J
Aniline	13 J
Diphenyl Ether	4 J
Naphthalene	1 J
N-Nitrosodiphenylamine	240
O-Toluidine	37

H05-M03B	
Analyte	02/04/2019
	FS
Gasses	
Methane	8000
Volatile Organic Compounds	
1,2-Dichlorobenzene	130
1,3-Dichlorobenzene	4 J
1,4-Dichlorobenzene	38 J
Benzene	15
Chlorobenzene	2600
Cumene	7 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	160
2-Chlorophenol	18
2-Naphthylamine	29 J
Aniline	7
Naphthalene	2
N-Nitrosodiphenylamine	11

H05-M01B	
Analyte	02/04/2019
	FS
Gasses	
Methane	1400
Volatile Organic Compounds	
1,2-Dichlorobenzene	23 J
1,3-Dichlorobenzene	19 J
1,4-Dichlorobenzene	70
Benzene	41
Chlorobenzene	3600
Cumene	4 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	82
2-Chlorophenol	14
Acenaphthene	2
Aniline	8 J
N-Nitrosodiphenylamine	69

H05-M02B	
Analyte	02/05/2019
	FS
Gasses	
Ethane	1.1 J
Methane	11000
Volatile Organic Compounds	
1,2-Dichlorobenzene	43
1,3-Dichlorobenzene	21 J
1,4-Dichlorobenzene	100
Benzene	34
Chlorobenzene	2200
Tetrachloroethene	1 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	55 J
2-Chlorophenol	22
2-Methylnaphthalene	0.9
2-Naphthylamine	19 J
Acenaphthene	6
Anthracene	0.2 B
Carbazole	0.8 J
Diphenyl Ether	7
Naphthalene	13
N-Nitrosodiphenylamine	170
O-Toluidine	1 J
Phenanthrene	0.2 B

F05-M06B	
Analyte	03/04/2019
	FS
Gasses	
Ethane	2.4 J
Methane	1700
Volatile Organic Compounds	
1,2-Dichlorobenzene	2 J
1,4-Dichlorobenzene	0.4 J
Acetone	1 J
Carbon Disulfide	0.3 J
Chlorobenzene	16
cis-1,2 Dichloroethene	1
Toluene	0.3 J
trans-1,2-Dichloroethene	0.4 J
Trichloroethene	0.2 J
Vinyl Chloride	2
Semi-Volatile Organic Compounds	
1-Naphthylamine	16 J
Acenaphthene	0.4 J
Benzo(A)Anthracene	0.1
Benzo(B)Fluoranthene	0.02 J
Benzo[A]Pyrene	0.01 J
Diphenyl Ether	1 J
Pyrene	1

F05-M05B	
Analyte	01/30/2019
	FS
Gasses	
Ethane	6.3
Methane	1700
Volatile Organic Compounds	
1,2-Dichlorobenzene	34
1,2-Dichloroethane	1
1,3-Dichlorobenzene	11
1,4-Dichlorobenzene	56
Benzene	10
Chlorobenzene	680
cis-1,2 Dichloroethene	0.7 J
Cumene	1 J
Cyclohexane	0.4 J
Ethylbenzene	0.5 J
Tetrachloroethene	0.4 J
Trichloroethene	0.6 J
Vinyl Chloride	0.3 J
Semi-Volatile Organic Compounds	
1,2,4-Trichlorobenzene	2 J
1-Naphthylamine	87 J
2-Chlorophenol	2
2-Naphthylamine	10 J
4-Aminobiphenyl	4 J
Acenaphthene	7
Aniline	1 J
Naphthalene	0.4 J
N-Nitrosodiphenylamine	8

F05-M03B	
Analyte	02/06/2019
	FS
Gasses	
Methane	9700
Semi-Volatile Organic Compounds	
2,4,5-Trichlorophenol	1 J
2,4-Dichlorophenol	1 J
Benzo(A)Anthracene	0.01 J
Benzo(B)Fluoranthene	0.01 J

H04-M02B	
	02/05/2019
Parameter Name	FS
Gasses	
Methane	240 J

G04-M02B	
Analyte	02/05/2019
	FS
Gasses	
Methane	14
Volatile Organic Compounds	
1,2-Dichlorobenzene	1 J
1,4-Dichlorobenzene	1 J
Chlorobenzene	6

H05-M04B	
Analyte	02/04/2019
	FS
Gasses	
Ethane	1.2 J
Methane	9900
Volatile Organic Compounds	
1,1-Dichloroethane	2
1,2-Dichlorobenzene	9 J
1,3-Dichlorobenzene	2 J
1,4-Dichlorobenzene	12
Benzene	4
Chlorobenzene	620
Methyl Tertiary Butyl Ether	1 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	18
2-Chlorophenol	2
Acenaphthene	4
Anthracene	0.4 J
Diphenyl Ether	4
N-Nitrosodiphenylamine	4

J04-M01B	
Analyte	02/05/2019
	FS
Gasses	
No Detections	
Volatile Organic Compounds	
No Detections	
Semi-Volatile Organic Compounds	
Hexachlorobenzene	0.01 J
Phenanthrene	0.1 B

I05-M03B	
Analyte	02/05/2019
	FS
Gasses	
Ethane	3.0 J
Methane	3600
Volatile Organic Compounds	
1,1-Dichloroethane	10
1,2-Dichlorobenzene	130
1,3-Dichlorobenzene	17 J
1,4-Dichlorobenzene	130
Benzene	51
Chlorobenzene	8000
Cumene	4 J
Cyclohexane	5 J
Ethylbenzene	6 J
Ortho-Xylene	5 J
Semi-Volatile Organic Compounds	
1-Naphthylamine	25 J
2-Chlorophenol	9
2-Naphthylamine	7 J
4-Chloroaniline	55 J
Acenaphthene	13
Aniline	6
Anthracene	0.6
Benzo(A)Anthracene	0.02 J
Benzo(B)Fluoranthene	0.02 J
Carbazole	0.5 J
Dibenzofuran	2
Diphenyl Ether	71
Naphthalene	2
N-Nitrosodiphenylamine	24
O-Toluidine	5 J
Phenanthrene	0.2 B

LEGEND

B AQUIFER WELL

Notes:

* = Meta-, Para-, Ortho-Xylenes are not associated with NJGWIIA criteria however, total Xylene results were compared to NJGWIIA criteria.

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- - = Parameter not analyzed

Groundwater samples collected on July 16 and August 2 though 6, 2018.

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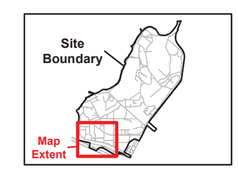
Source: 2014 aerials originated by Axis Geospatial LLC.

Map Projection: NAD83 New Jersey State Plane Feet



N
W E
S

0 100 200 400
Feet
1 inch = 200 feet
MAP FORMATTED FOR "B" (11" X 17") SIZE SHEET.
TEXT SCALE NOT VALID FOR DIFFERENT PAGE SIZE.

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Newark, DE 19713

SALEM CANAL B-AQUIFER GROUNDWATER VOC AND SVOC DETECTIONS - JANUARY AND FEBRUARY 2019

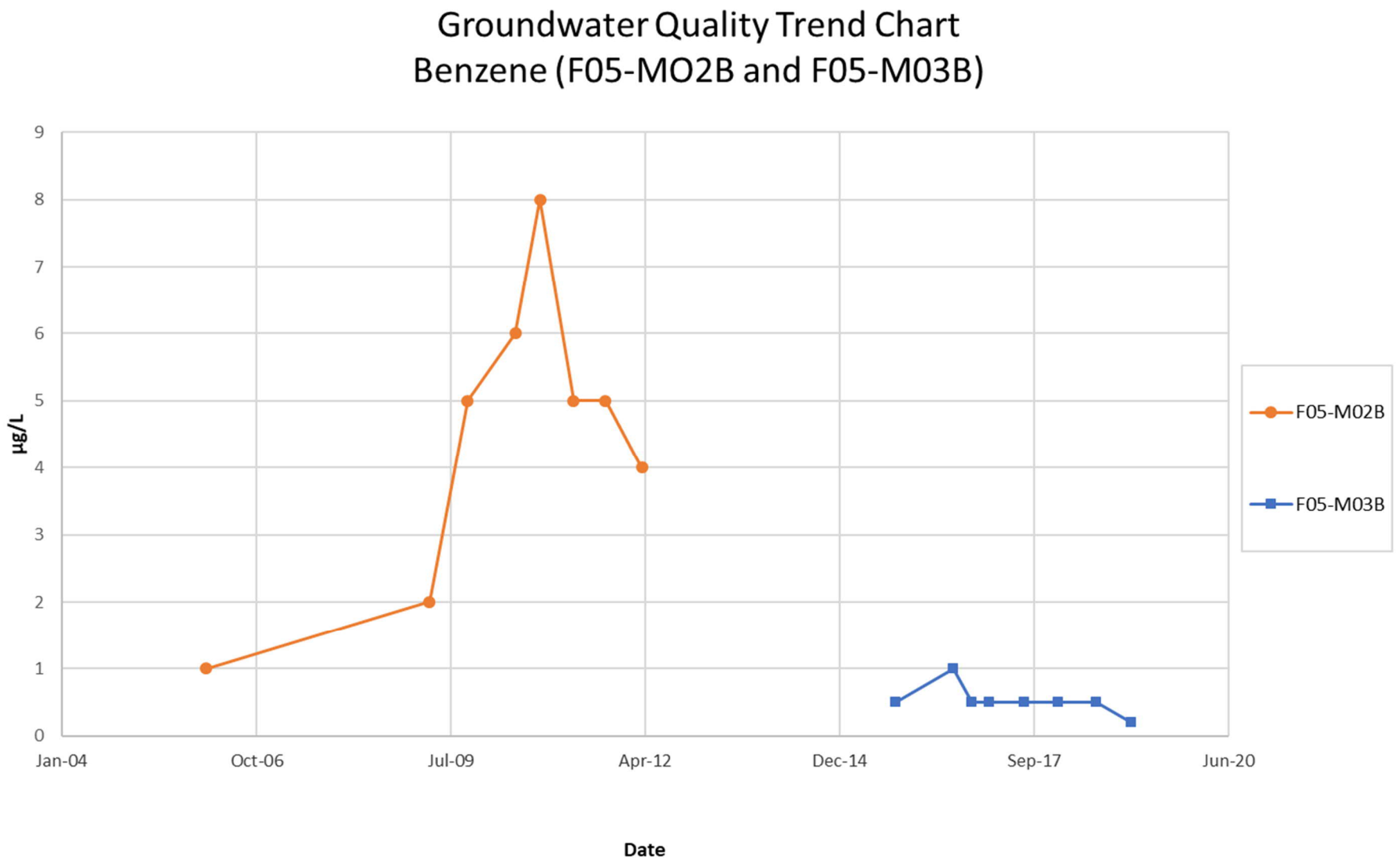
SALEM CANAL SUPPLEMENTAL GROUNDWATER INVESTIGATION DATA REPORT 2018
CHEMOURS CHAMBERS WORKS
DEEPWATER, NEW JERSEY

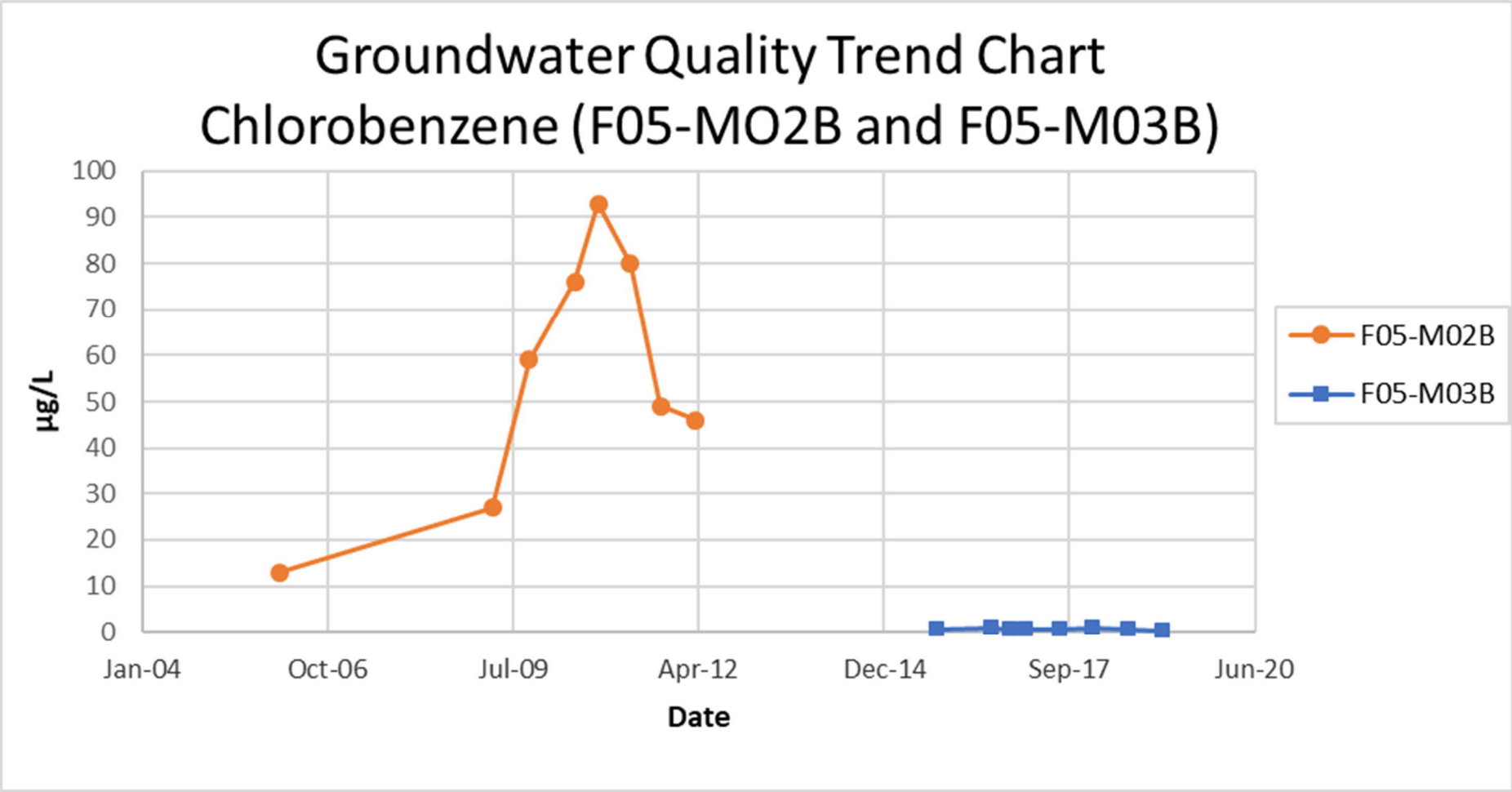
TASK NUMBER: 19002	PROJECT NUMBER: 60593793
DESIGNED BY: P. CHEN	DATE: 4/23/2019
DRAWN BY: M. LAYTON	FIGURE NUMBER: 3
DATA QUALITY CHECK BY: S. MORGAN	

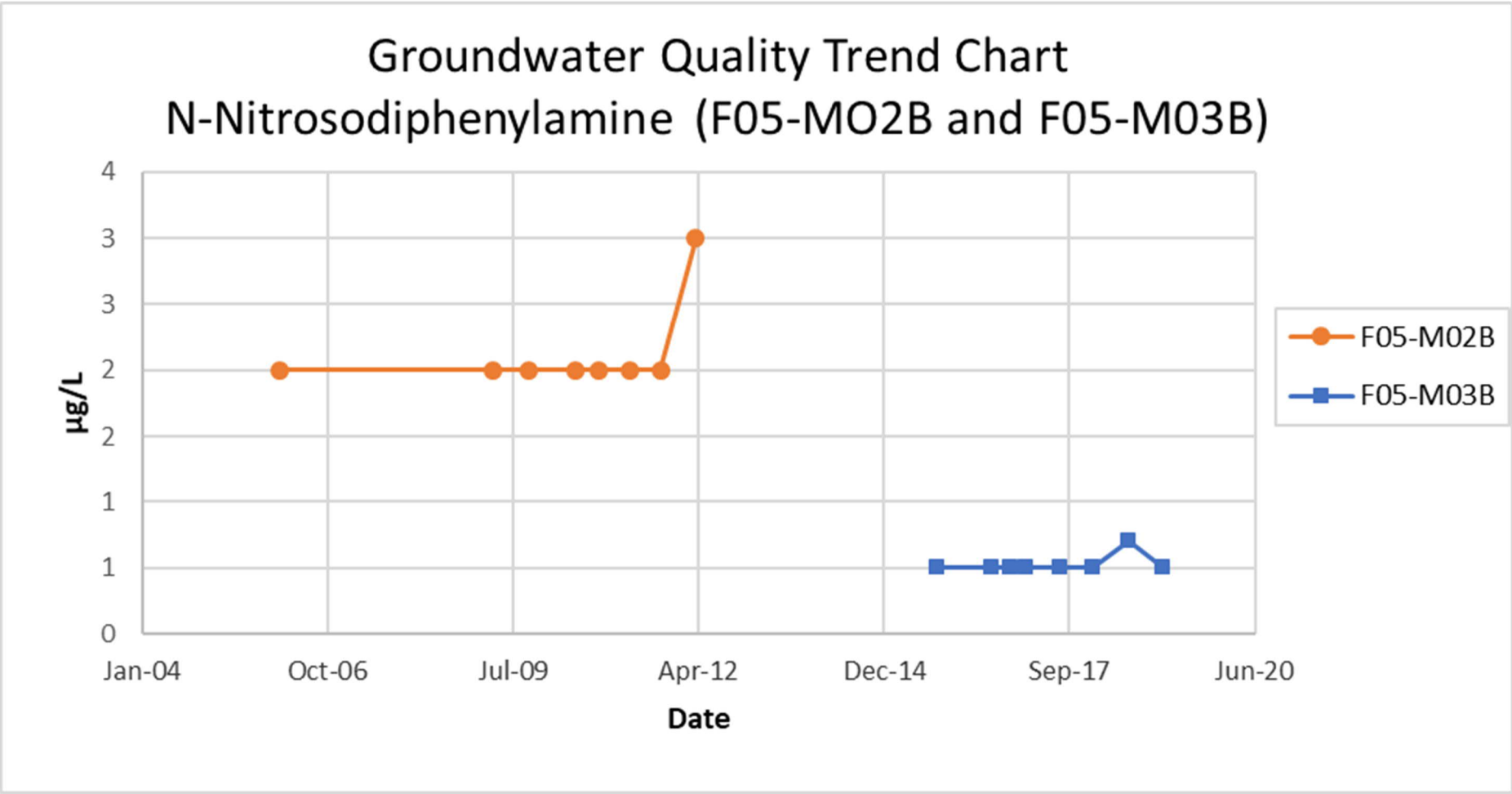
V:\Projects\DuPont\Chambers_Works_GIS\Projects\NJPDES_DGW_Semi_Annual_Reports\2018\2018\Fig\3_GW_Results_Jan-Feb2019.mxd

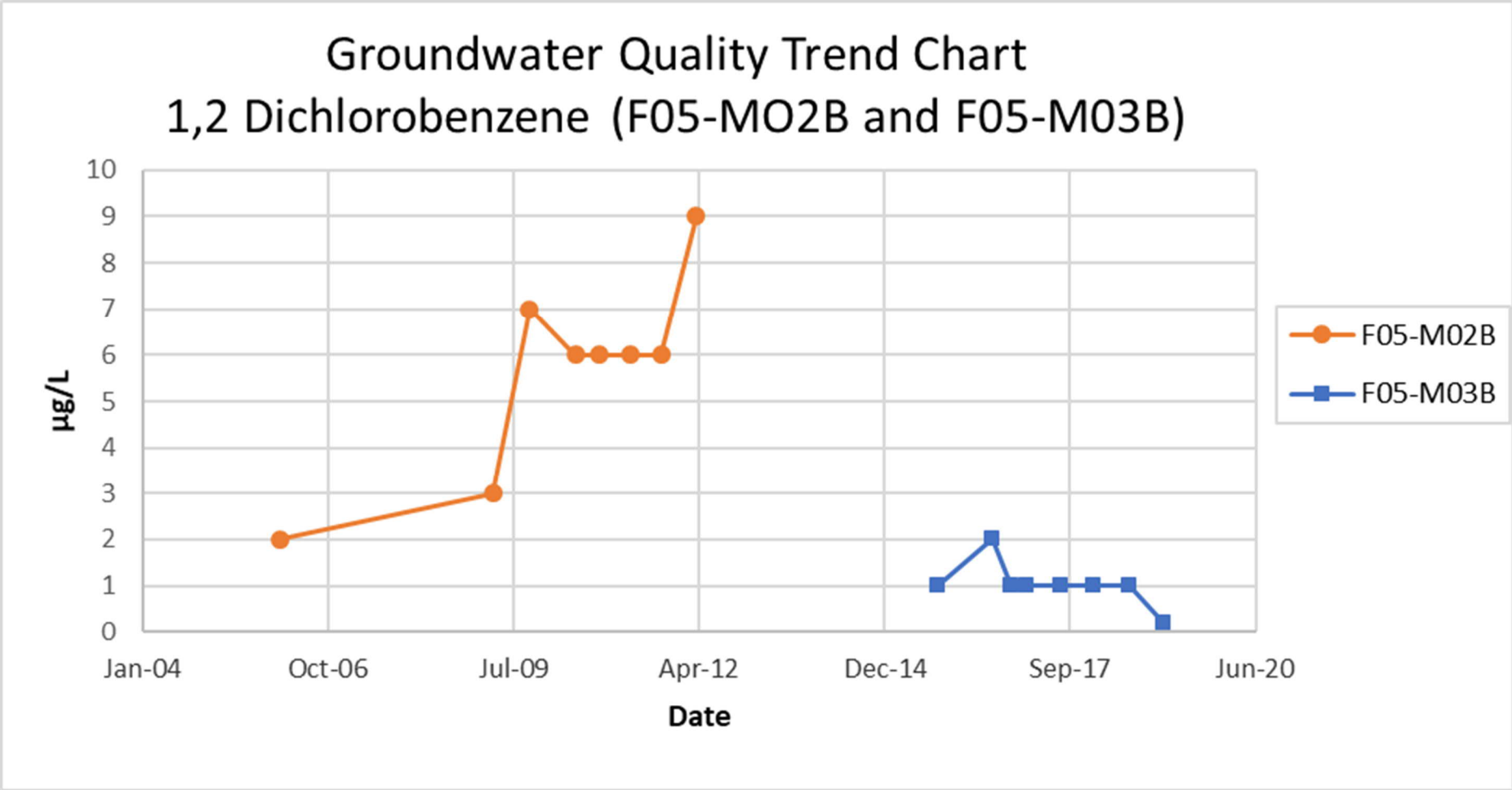
Appendix E

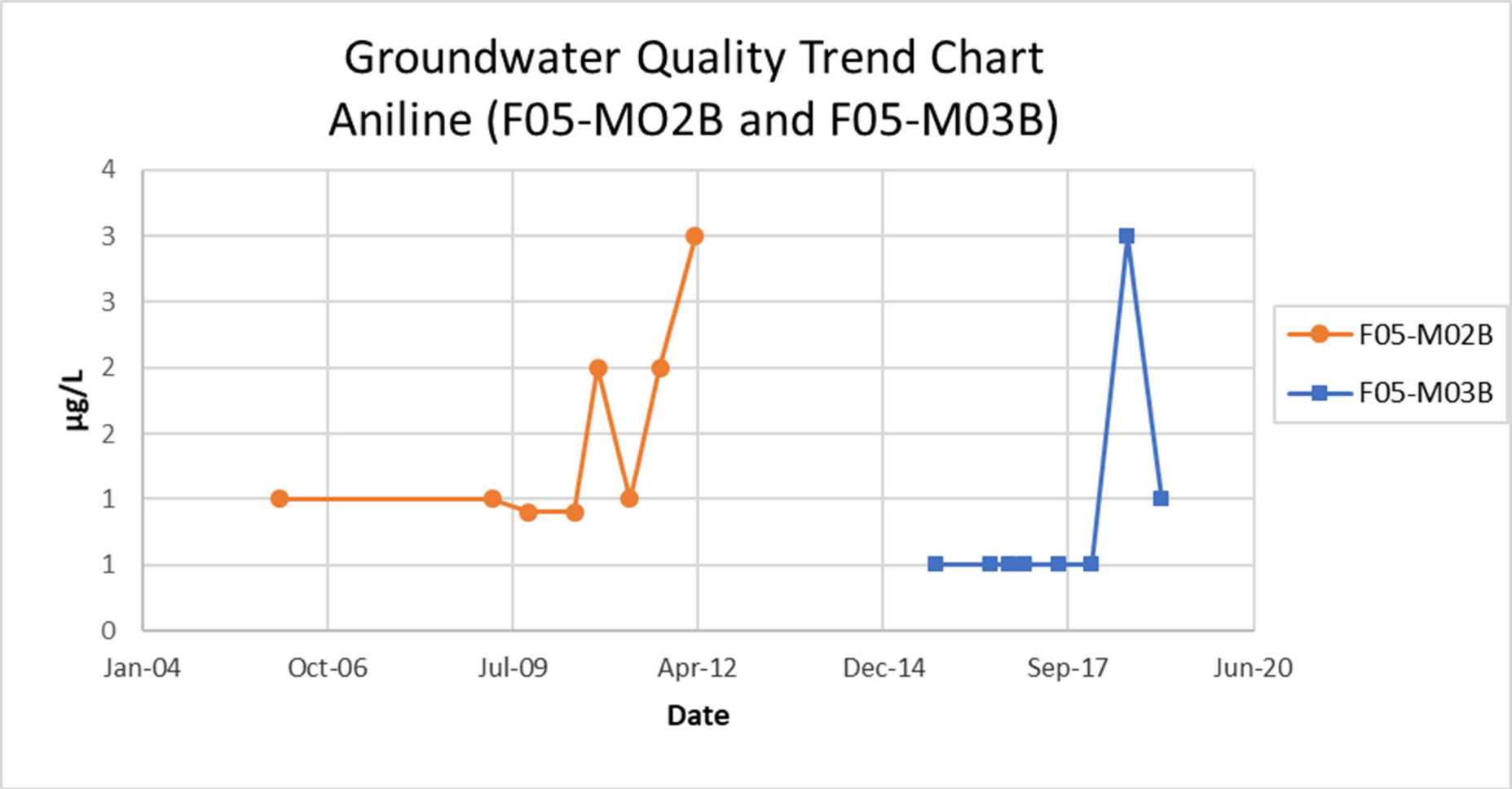
Analytical Results Trend Charts

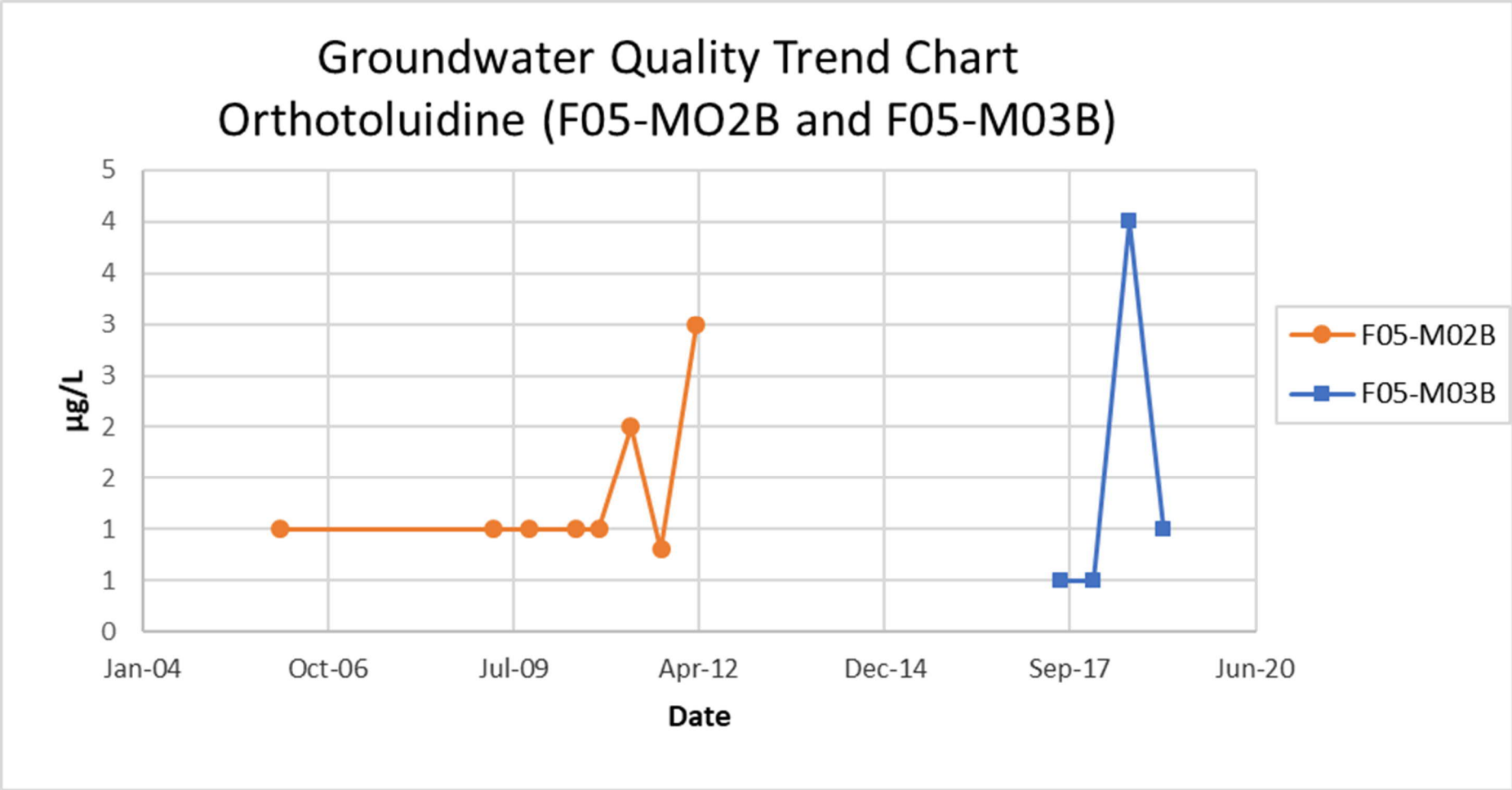

Groundwater Quality Trend Chart
Benzene (F05-MO2B and F05-M03B)
µg/L
9
8
7
6
5
4
3
2
1
0
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

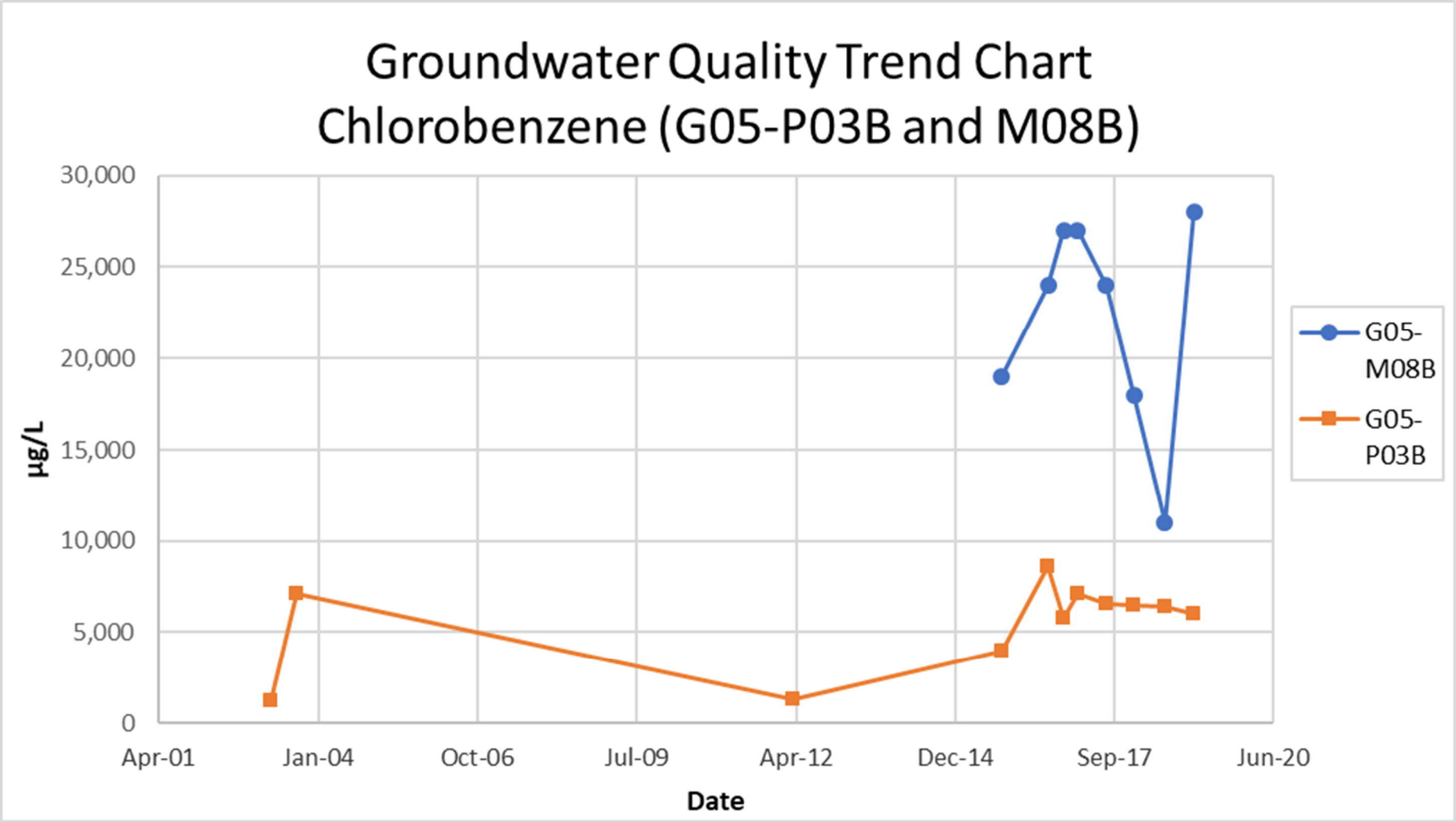

Groundwater Quality Trend Chart
Chlorobenzene (F05-MO2B and F05-M03B)
100
90
80
70
60
50
40
30
20
10
0
µg/L
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

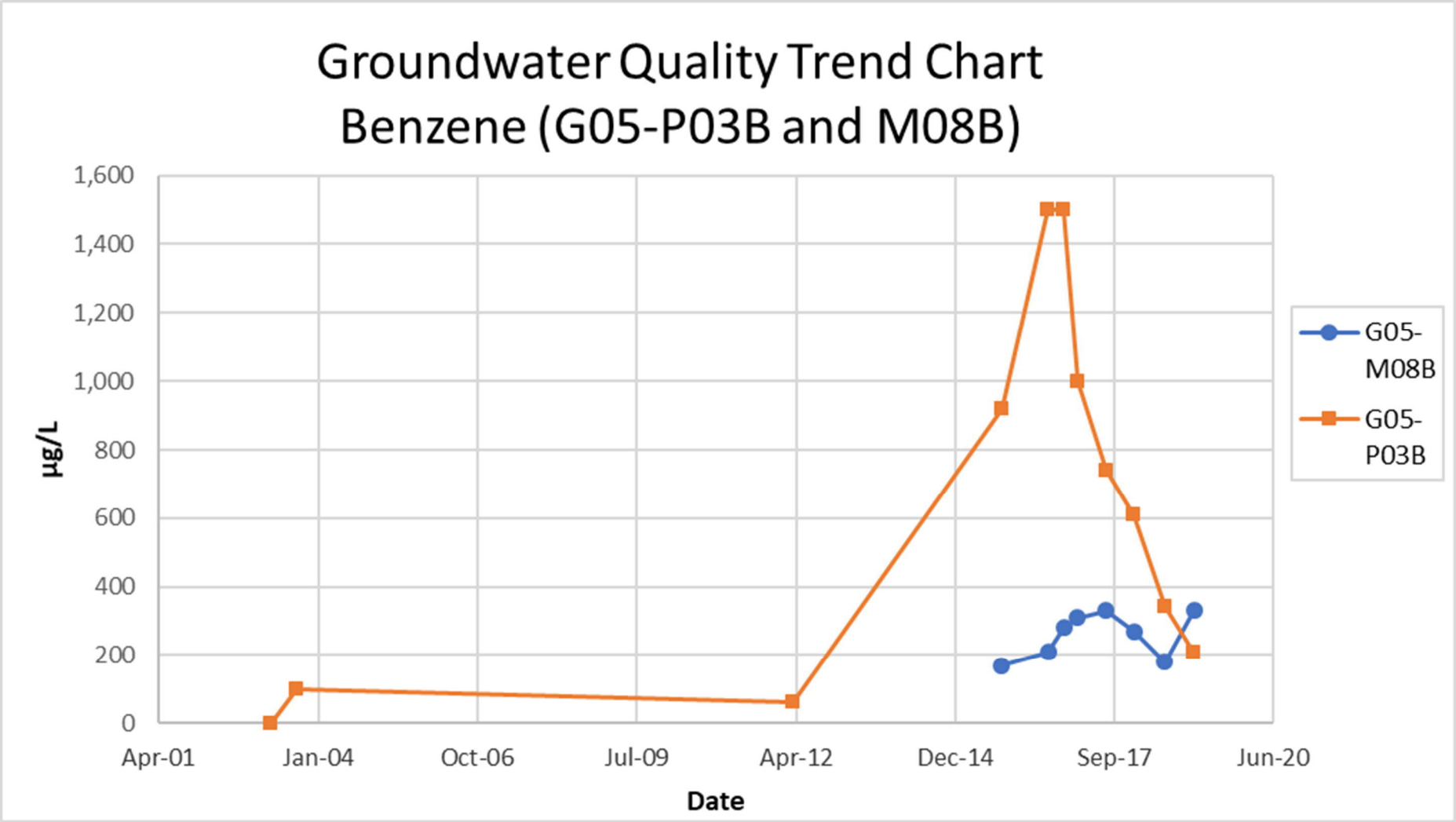

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (F05-MO2B and F05-M03B)
µg/L
4
3
3
2
2
1
1
0
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

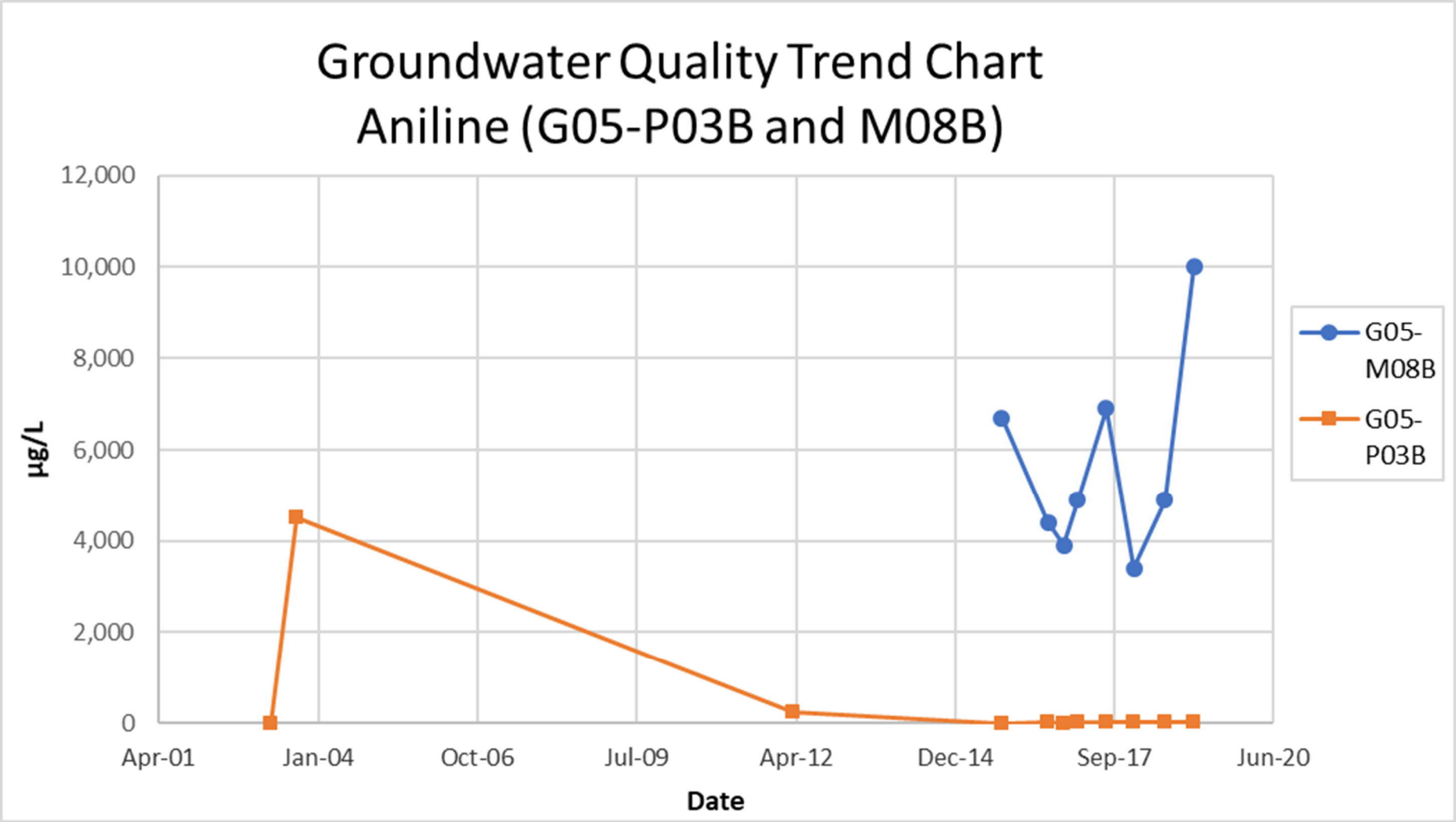

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (F05-MO2B and F05-M03B)
µg/L
10
9
8
7
6
5
4
3
2
1
0
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

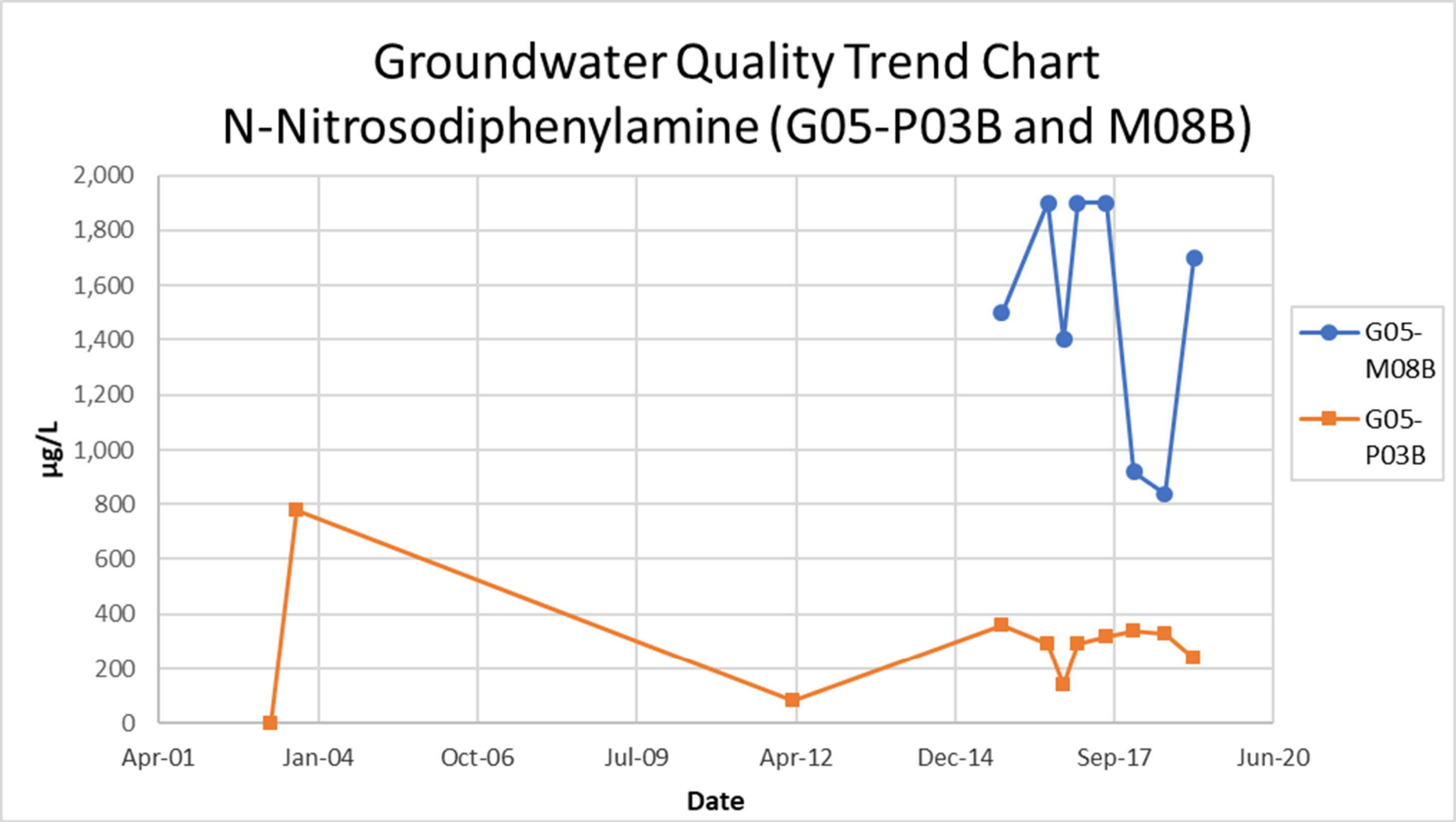

Groundwater Quality Trend Chart
Aniline (F05-MO2B and F05-M03B)
µg/L
4
3
3
2
2
1
1
0
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

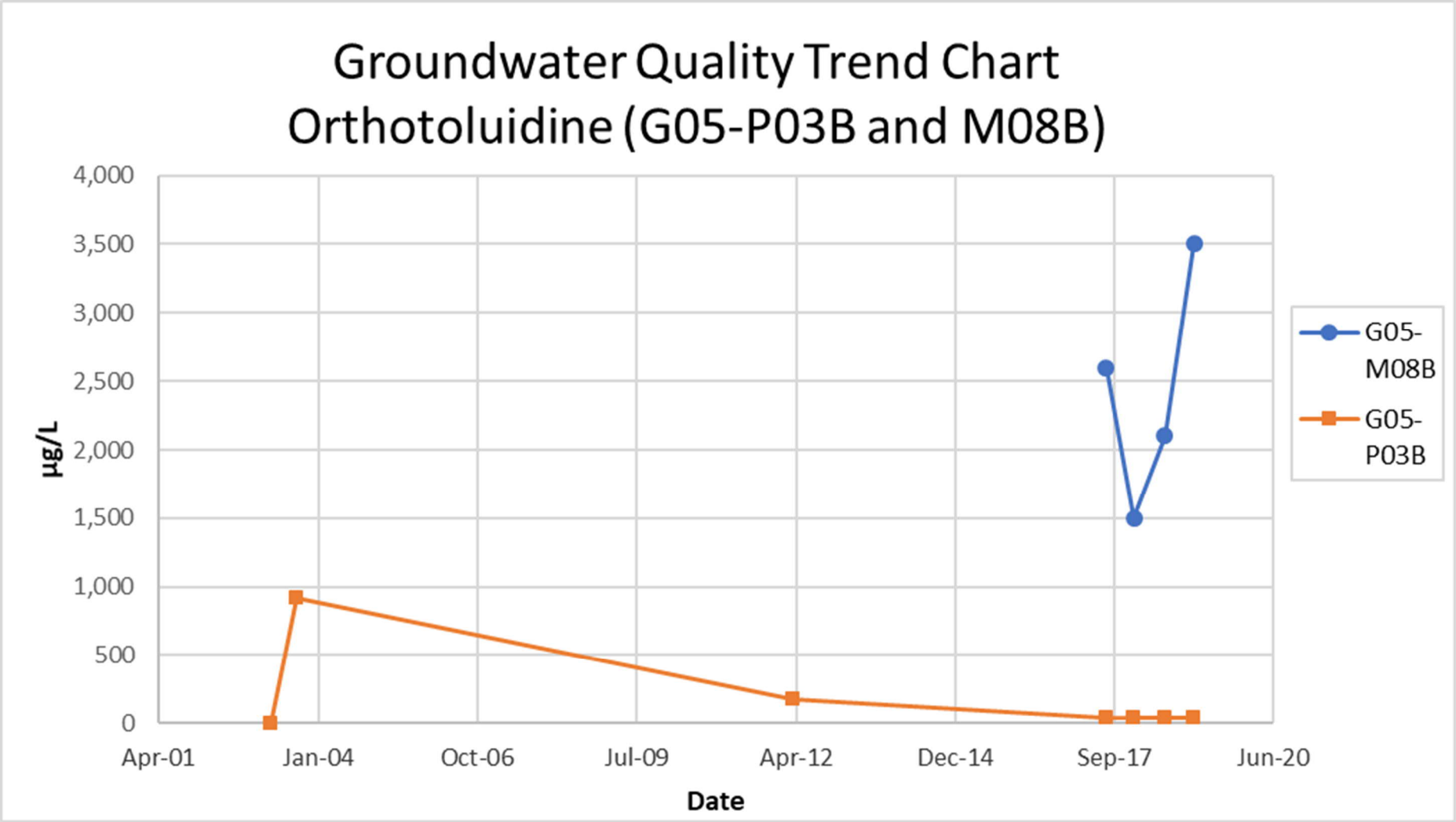

Groundwater Quality Trend Chart
Orthotoluidine (F05-MO2B and F05-M03B)
µg/L
5
4
4
3
3
2
2
1
1
0
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
F05-M02B
F05-M03B

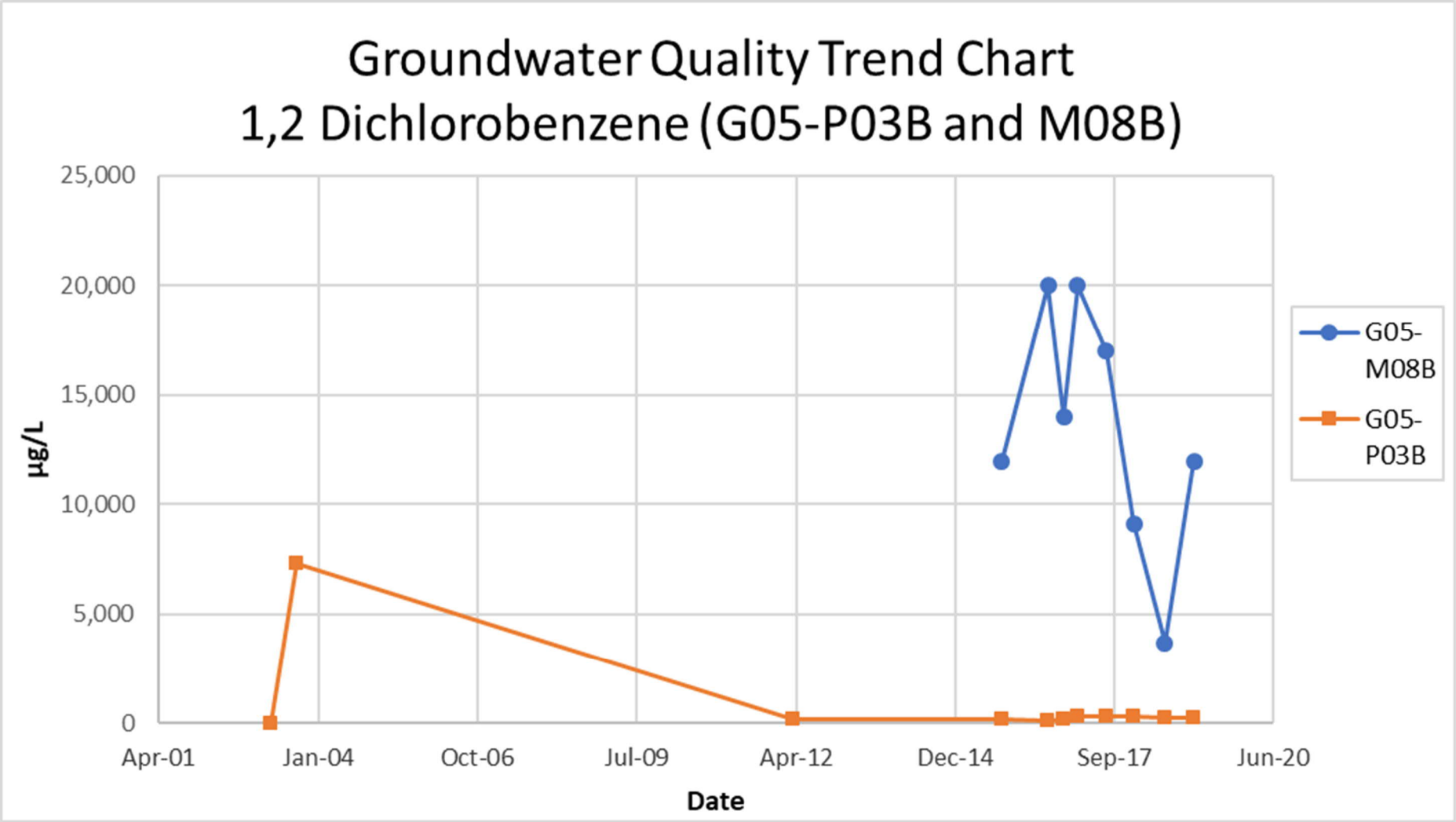

Groundwater Quality Trend Chart
Chlorobenzene (G05-P03B and M08B)
30,000
25,000
20,000
15,000
10,000
5,000
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

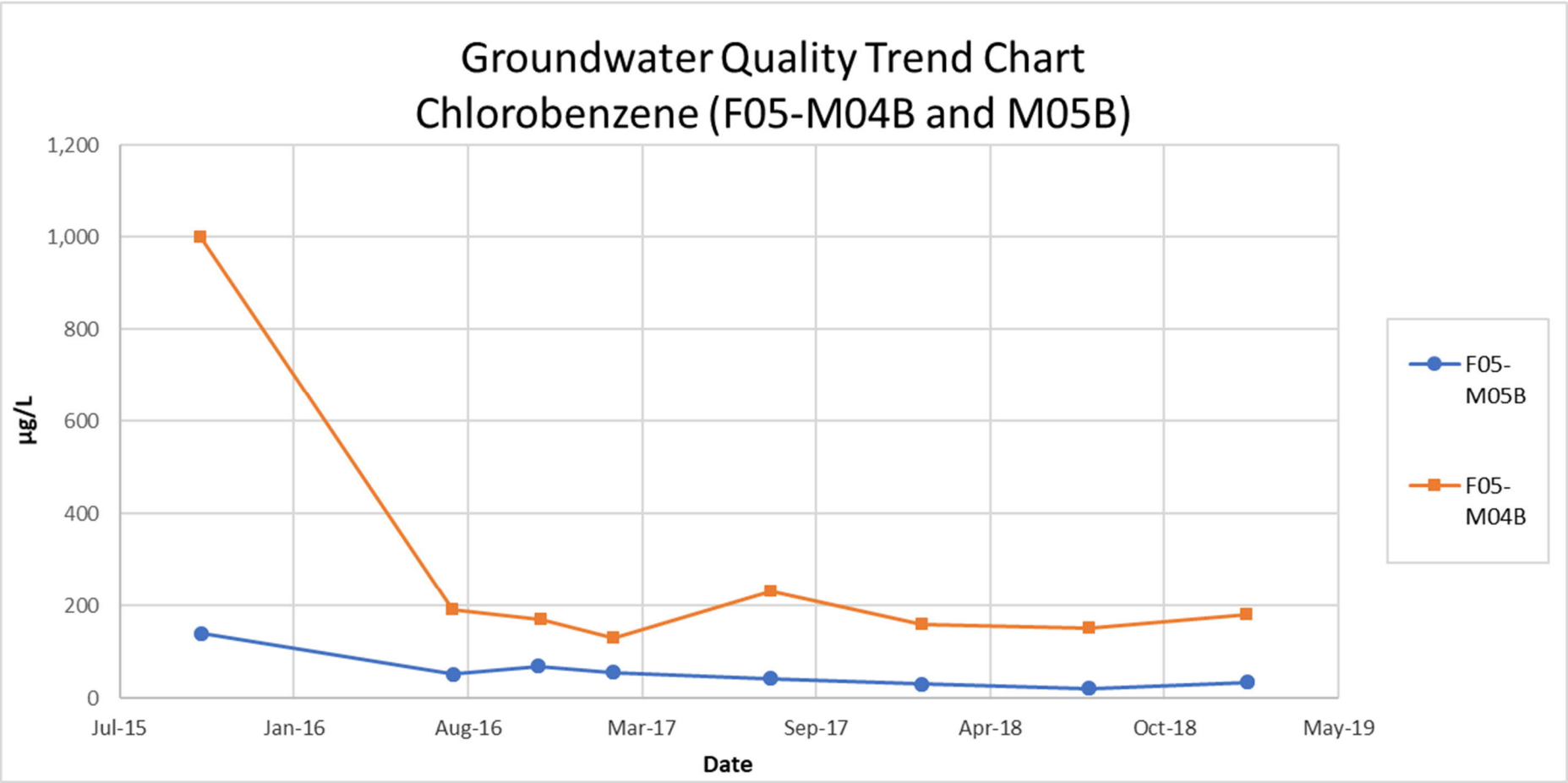

Groundwater Quality Trend Chart
Benzene (G05-P03B and M08B)
1,600
1,400
1,200
1,000
800
600
400
200
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

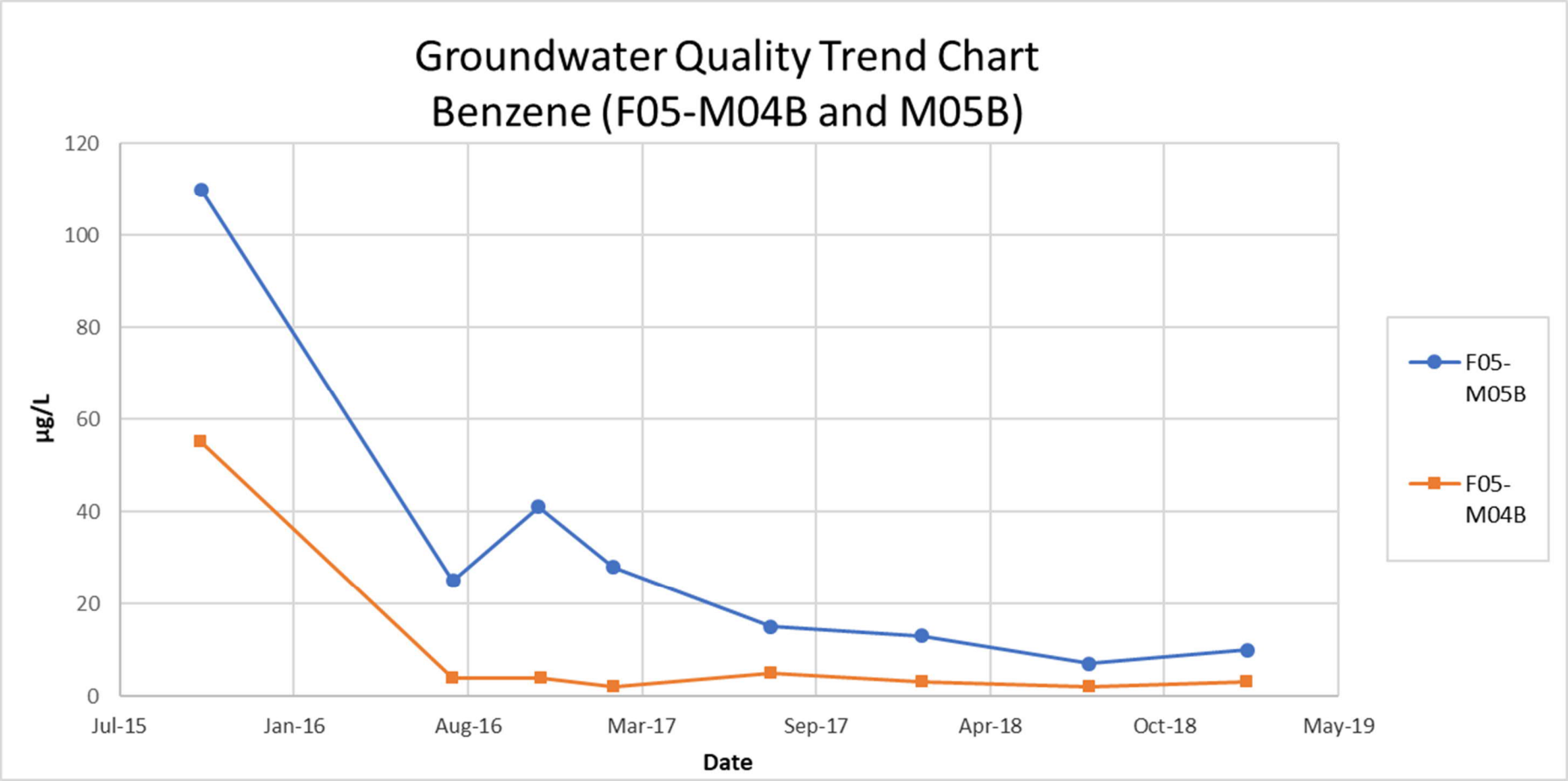

Groundwater Quality Trend Chart
Aniline (G05-P03B and M08B)
12,000
10,000
8,000
6,000
4,000
2,000
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

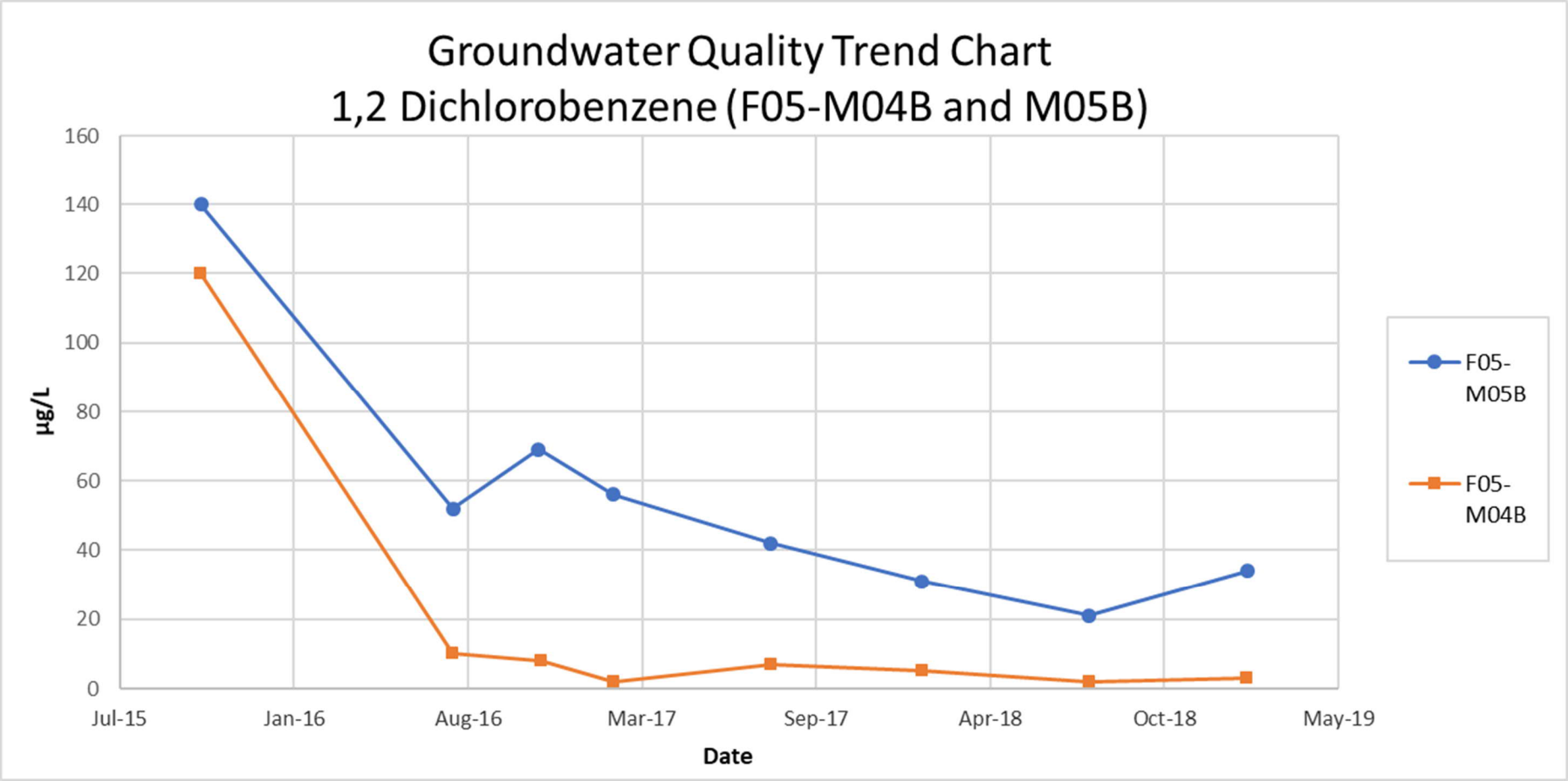

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (G05-P03B and M08B)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

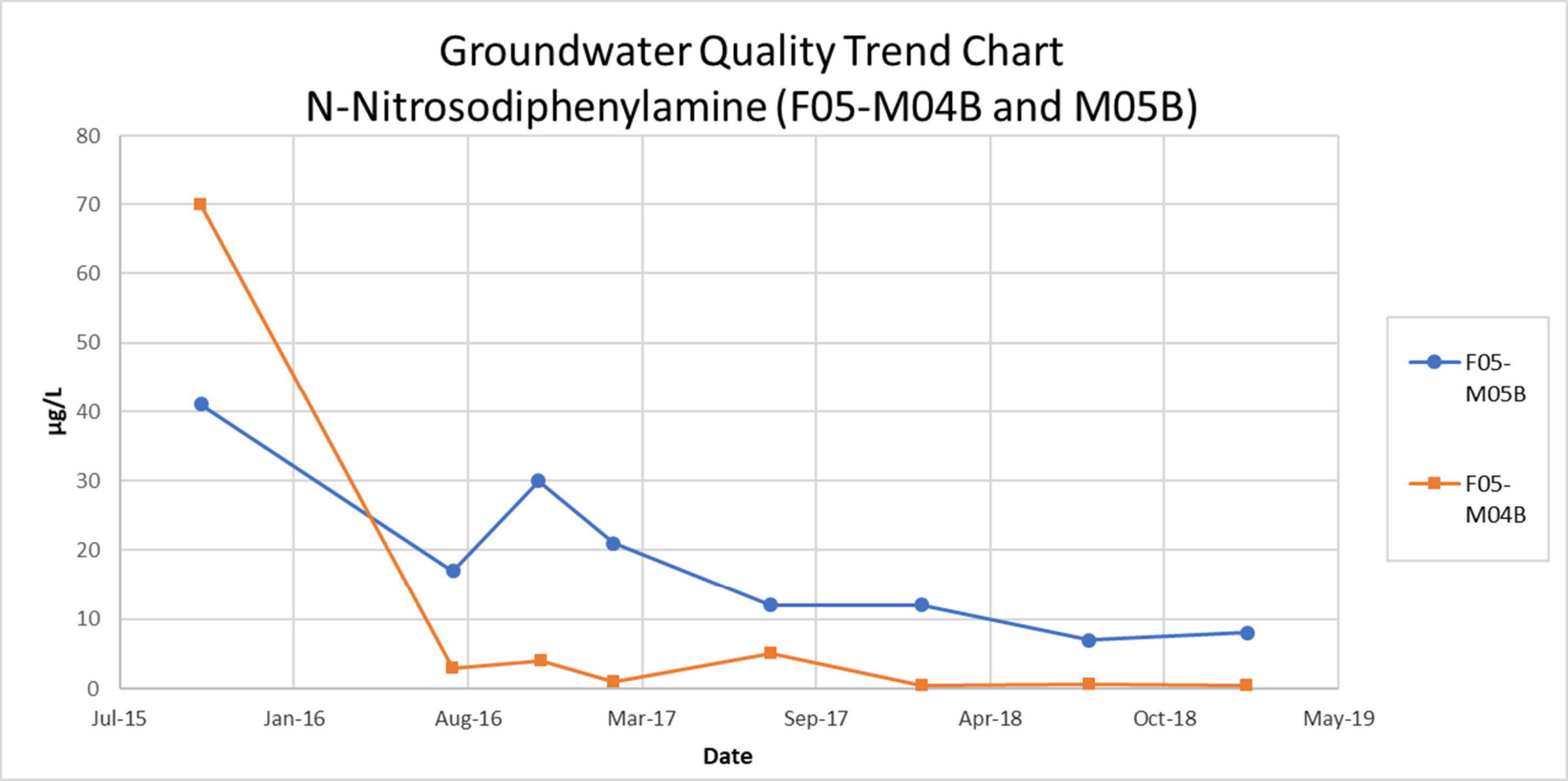

Groundwater Quality Trend Chart
Orthotoluidine (G05-P03B and M08B)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

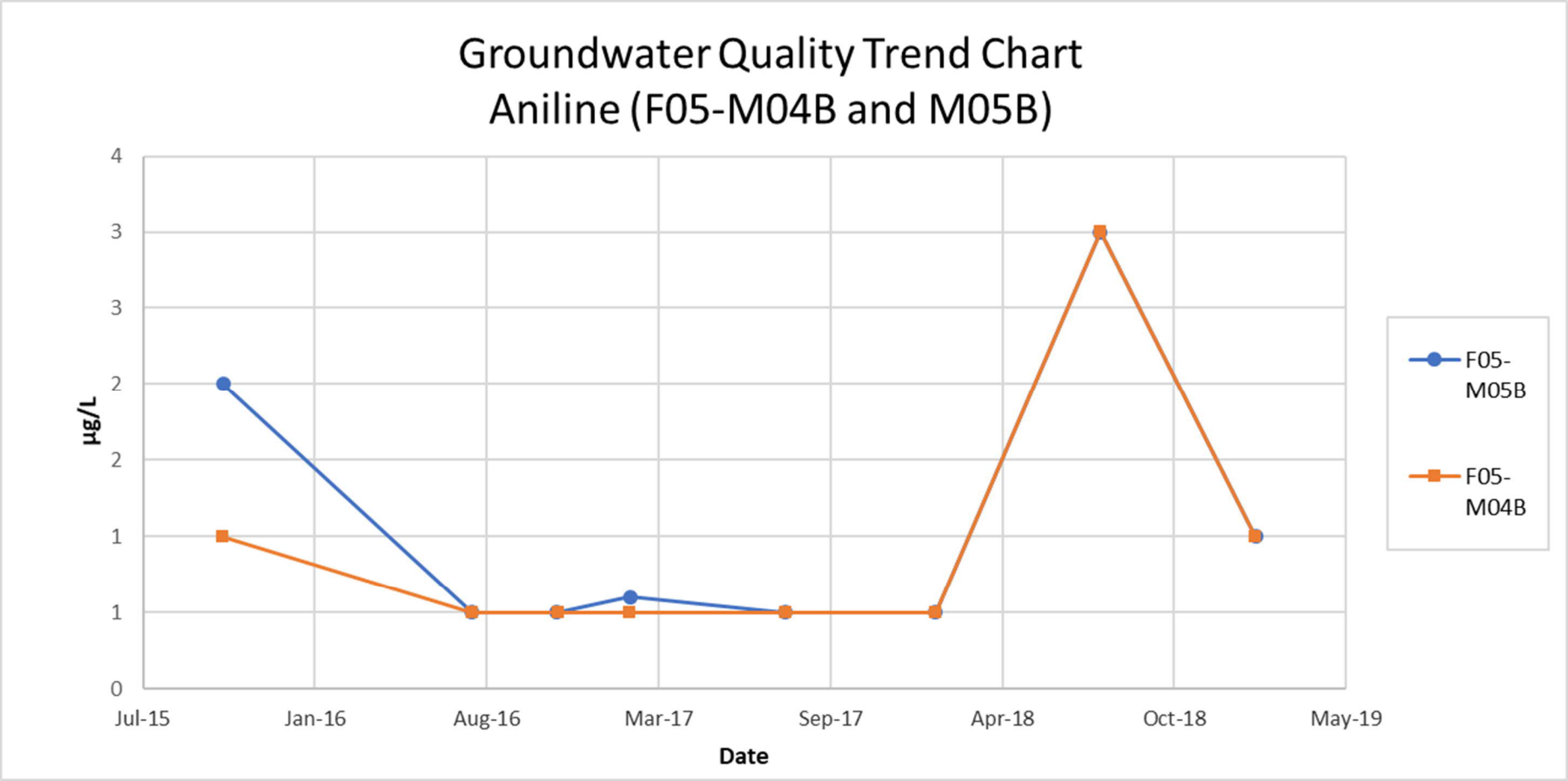

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (G05-P03B and M08B)
25,000
20,000
15,000
10,000
5,000
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G05-M08B
G05-P03B

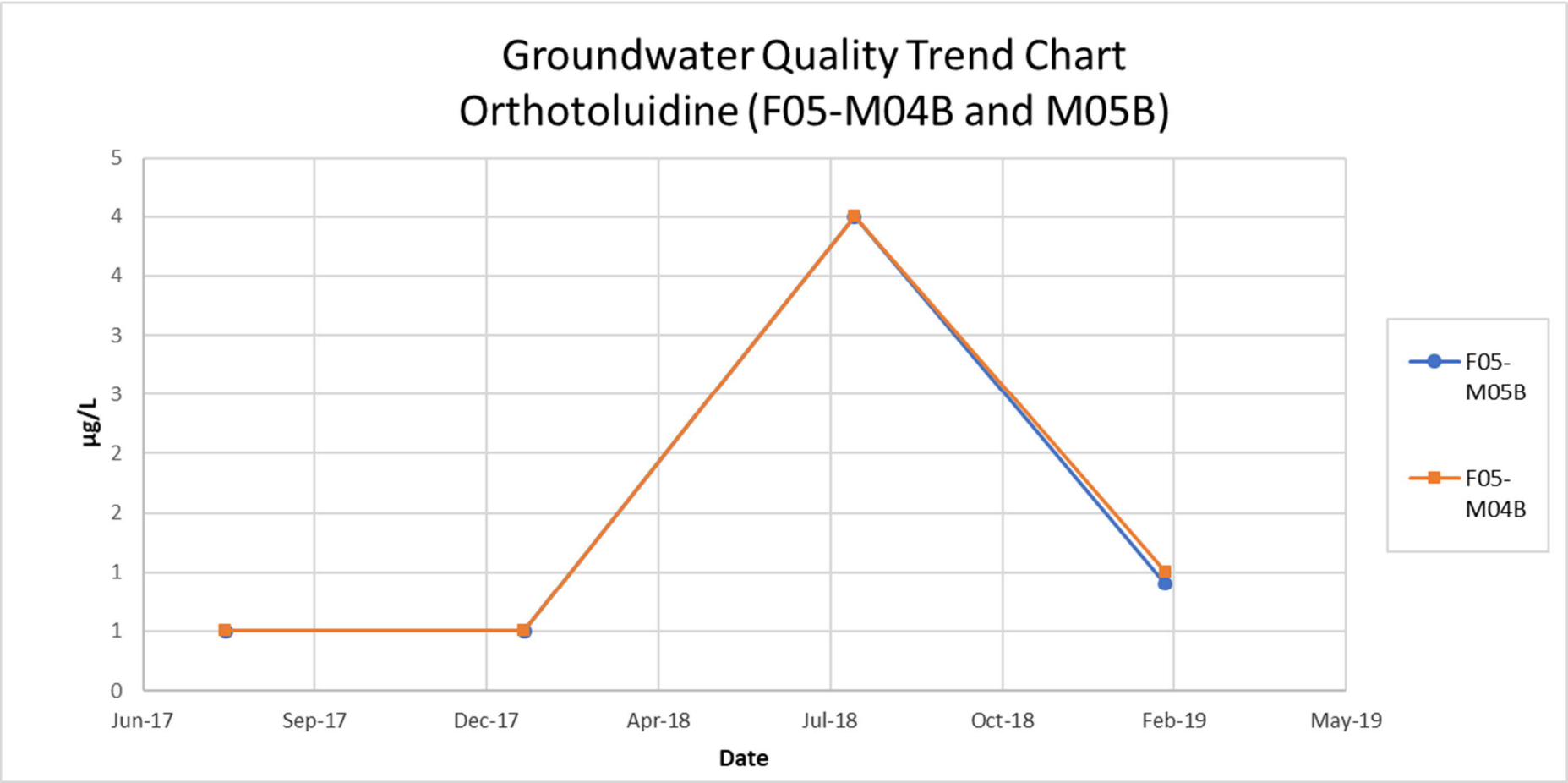

Groundwater Quality Trend Chart
Chlorobenzene (F05-M04B and M05B)
1,200
1,000
800
600
400
200
0
µg/L
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Date
F05-M05B
F05-M04B

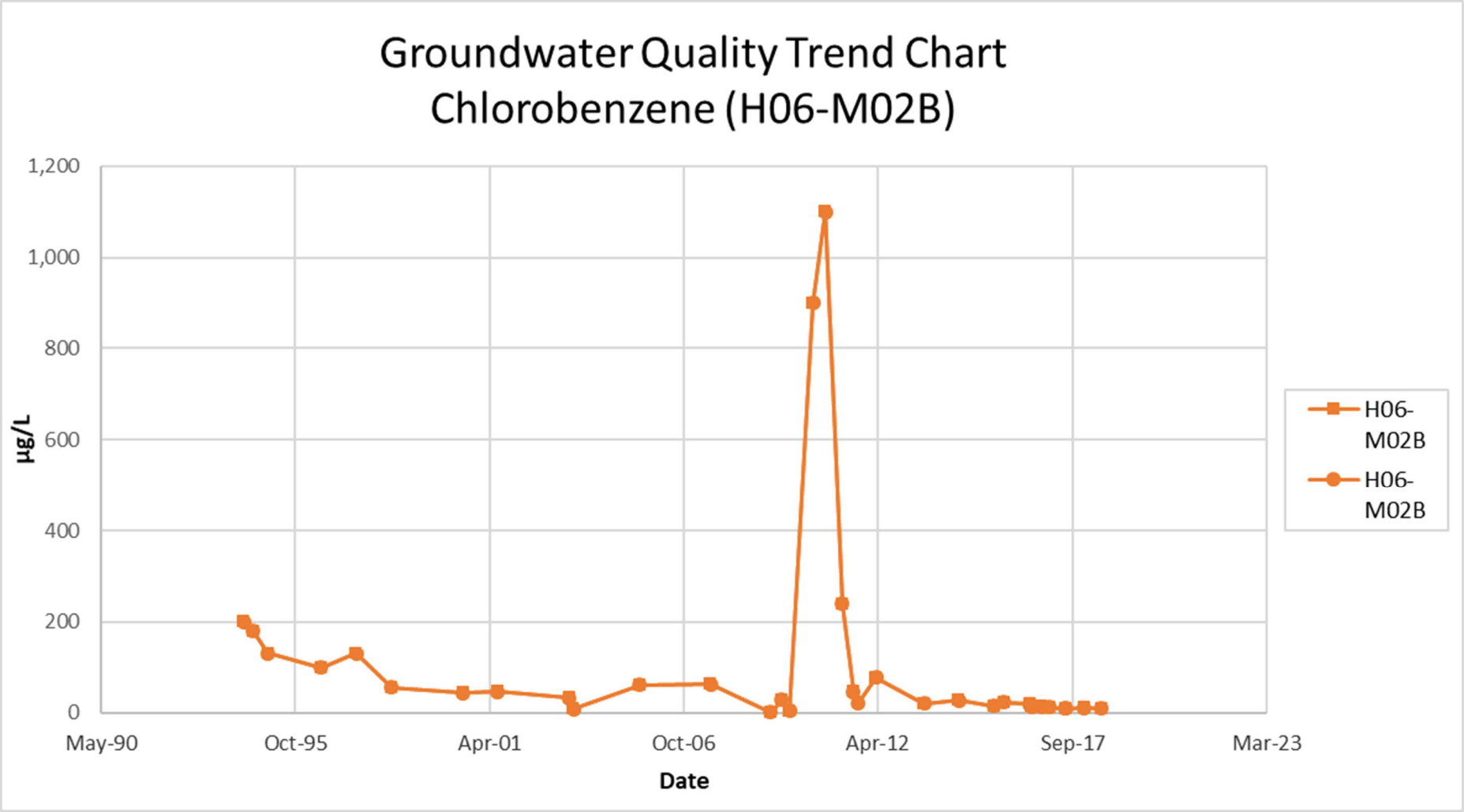

Groundwater Quality Trend Chart
Benzene (F05-M04B and M05B)
120
100
80
60
40
20
0
µg/L
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Date
F05-M05B
F05-M04B

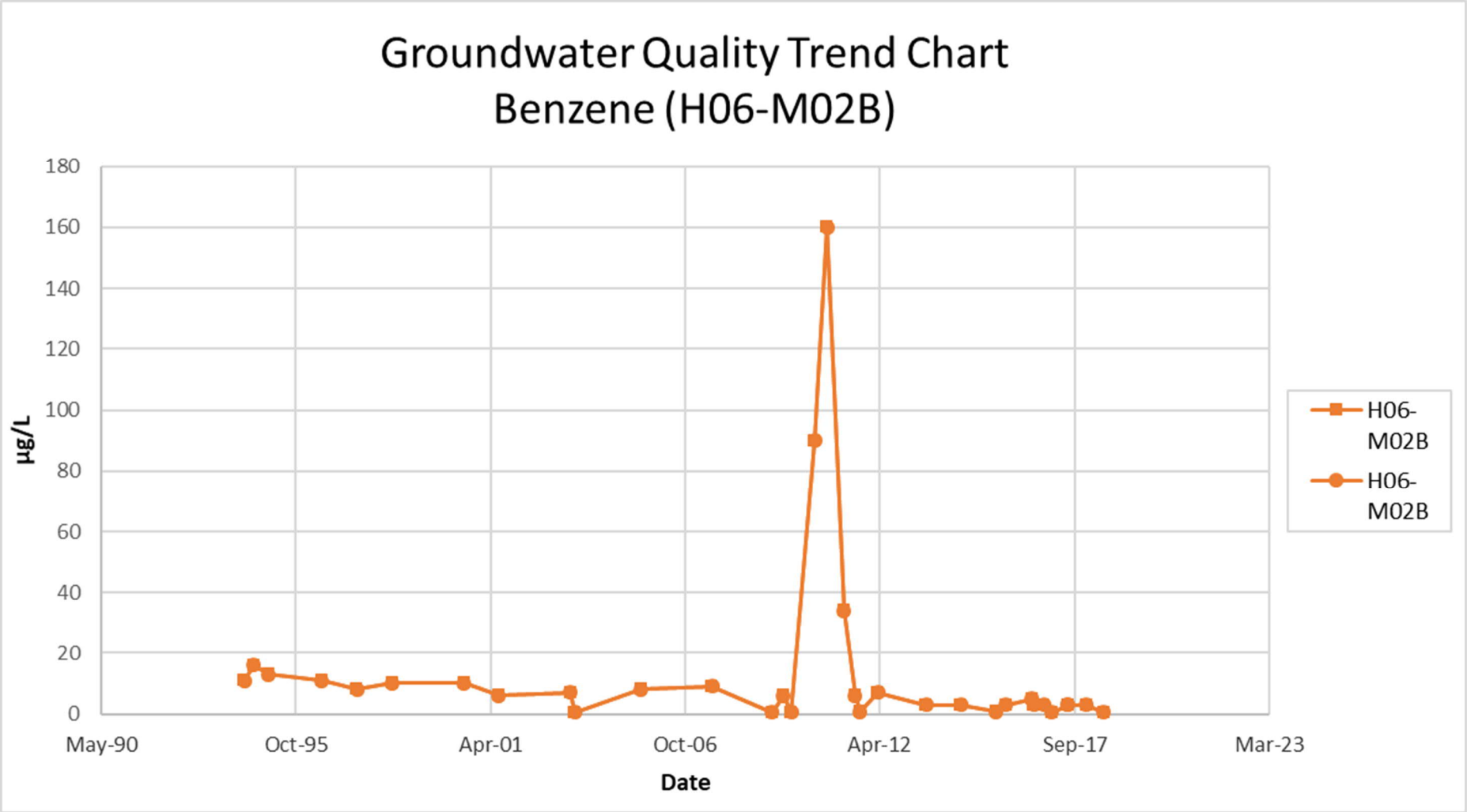

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (F05-M04B and M05B)
160
140
120
100
80
60
40
20
0
µg/L
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Date
F05-M05B
F05-M04B

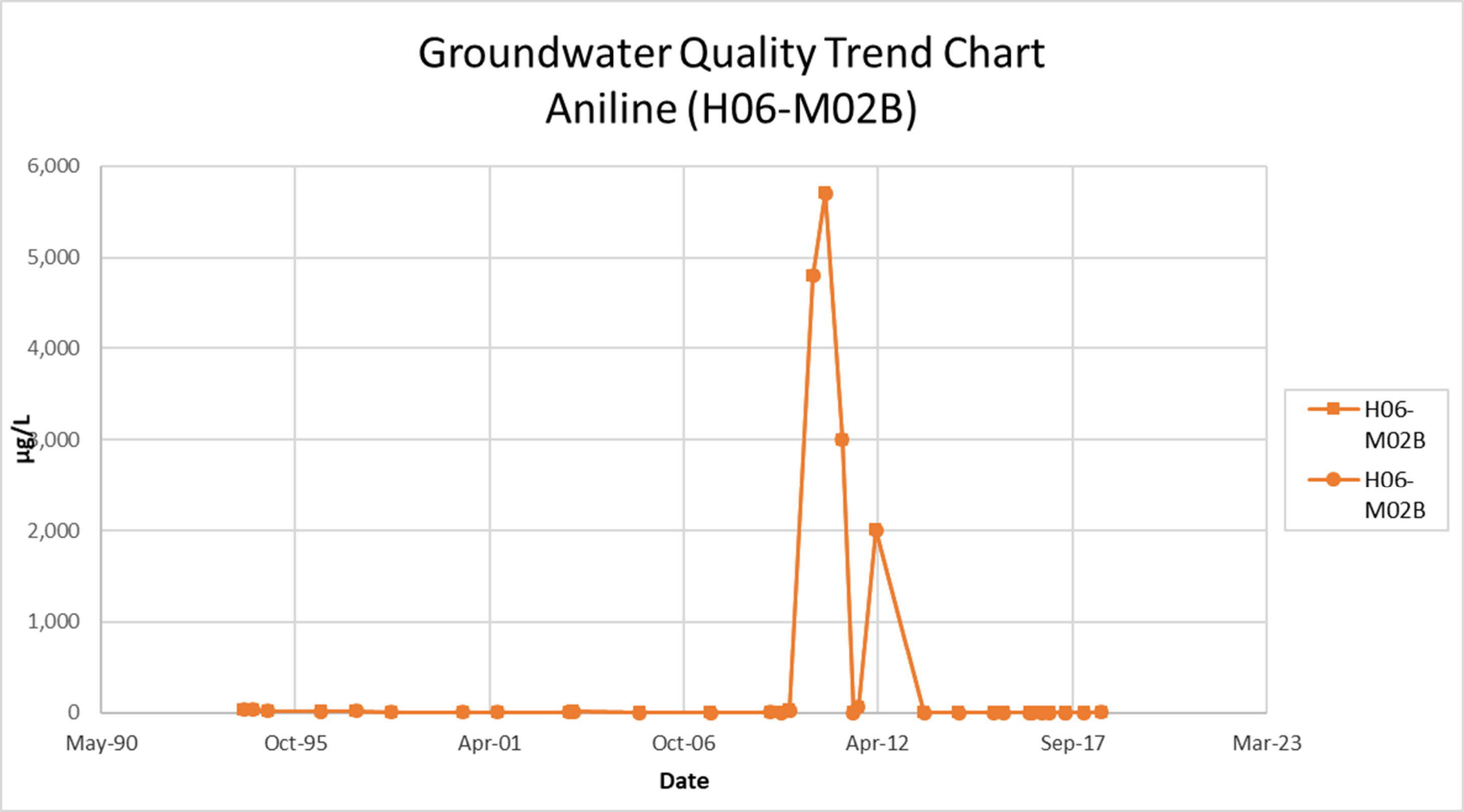

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (F05-M04B and M05B)
80
70
60
50
40
30
20
10
0
µg/L
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Date
F05-M05B
F05-M04B

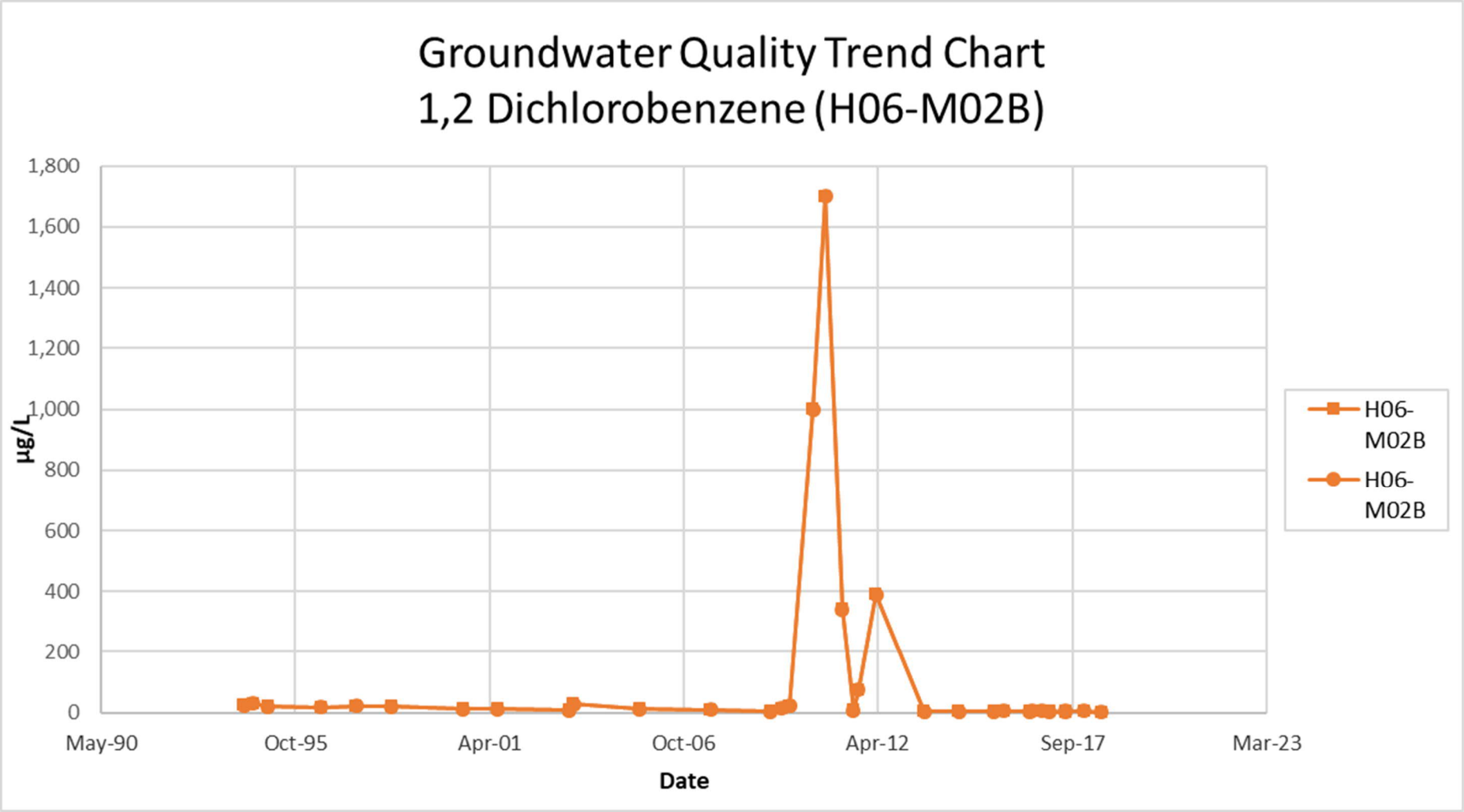

Groundwater Quality Trend Chart
Aniline (F05-M04B and M05B)
µg/L
4
3
3
2
2
1
1
0
Jul-15
Jan-16
Aug-16
Mar-17
Sep-17
Apr-18
Oct-18
May-19
Date
F05-M05B
F05-M04B

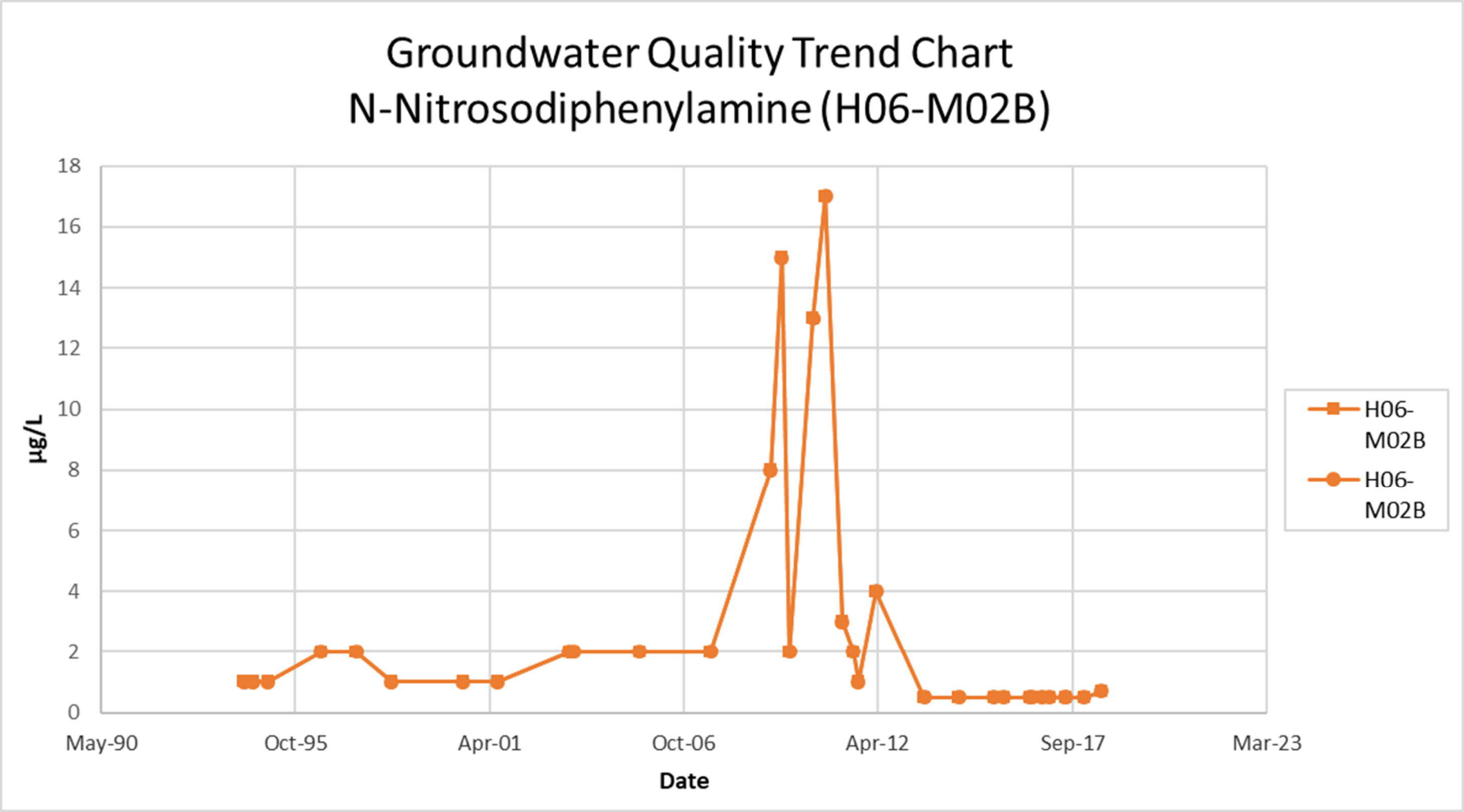

Groundwater Quality Trend Chart
Orthotoluidine (F05-M04B and M05B)
µg/L
5
4
4
3
3
2
2
1
1
0
Jun-17
Sep-17
Dec-17
Apr-18
Jul-18
Oct-18
Feb-19
May-19
Date
F05-M05B
F05-M04B

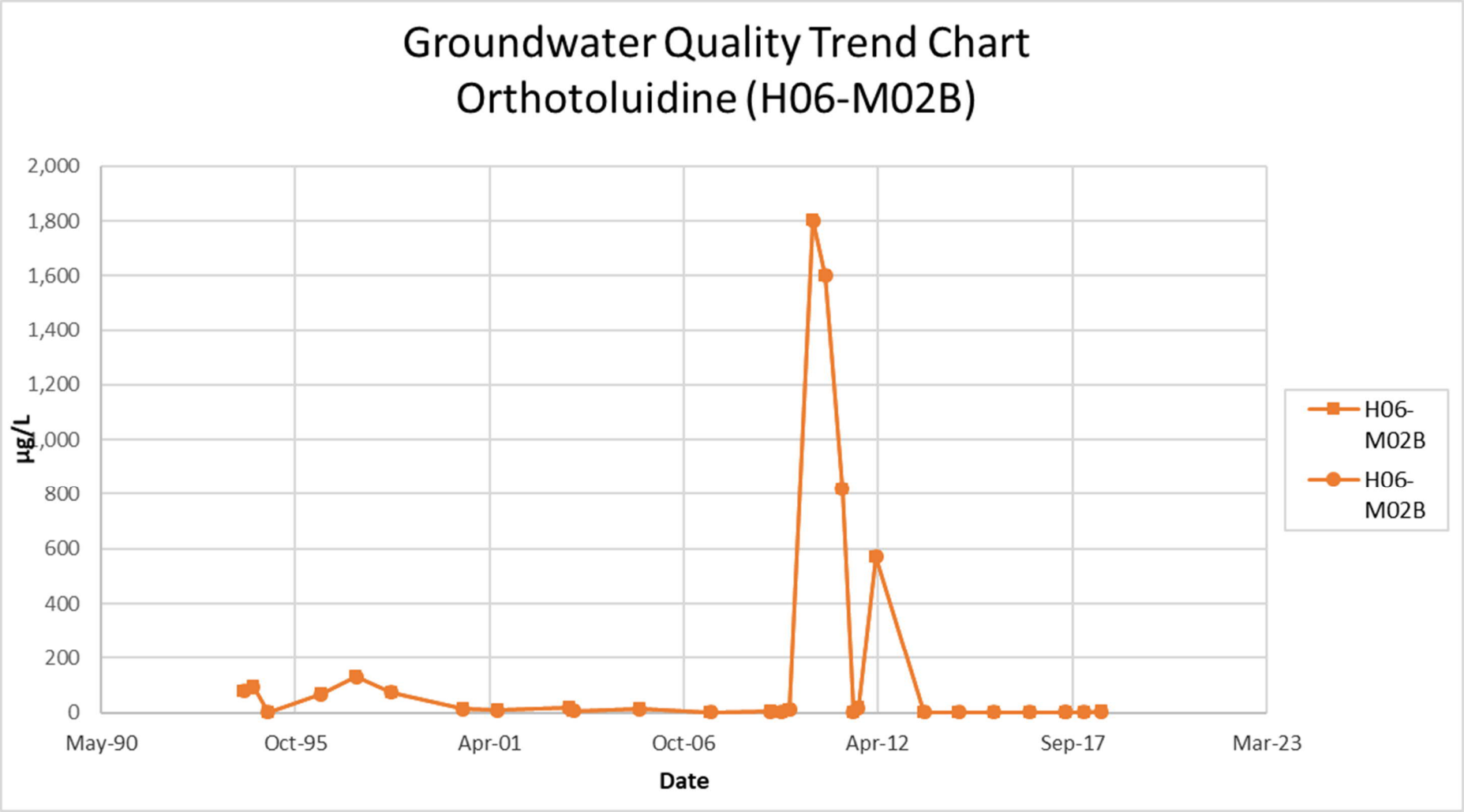

Groundwater Quality Trend Chart
Chlorobenzene (H06-M02B)
1,200
1,000
800
600
400
200
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

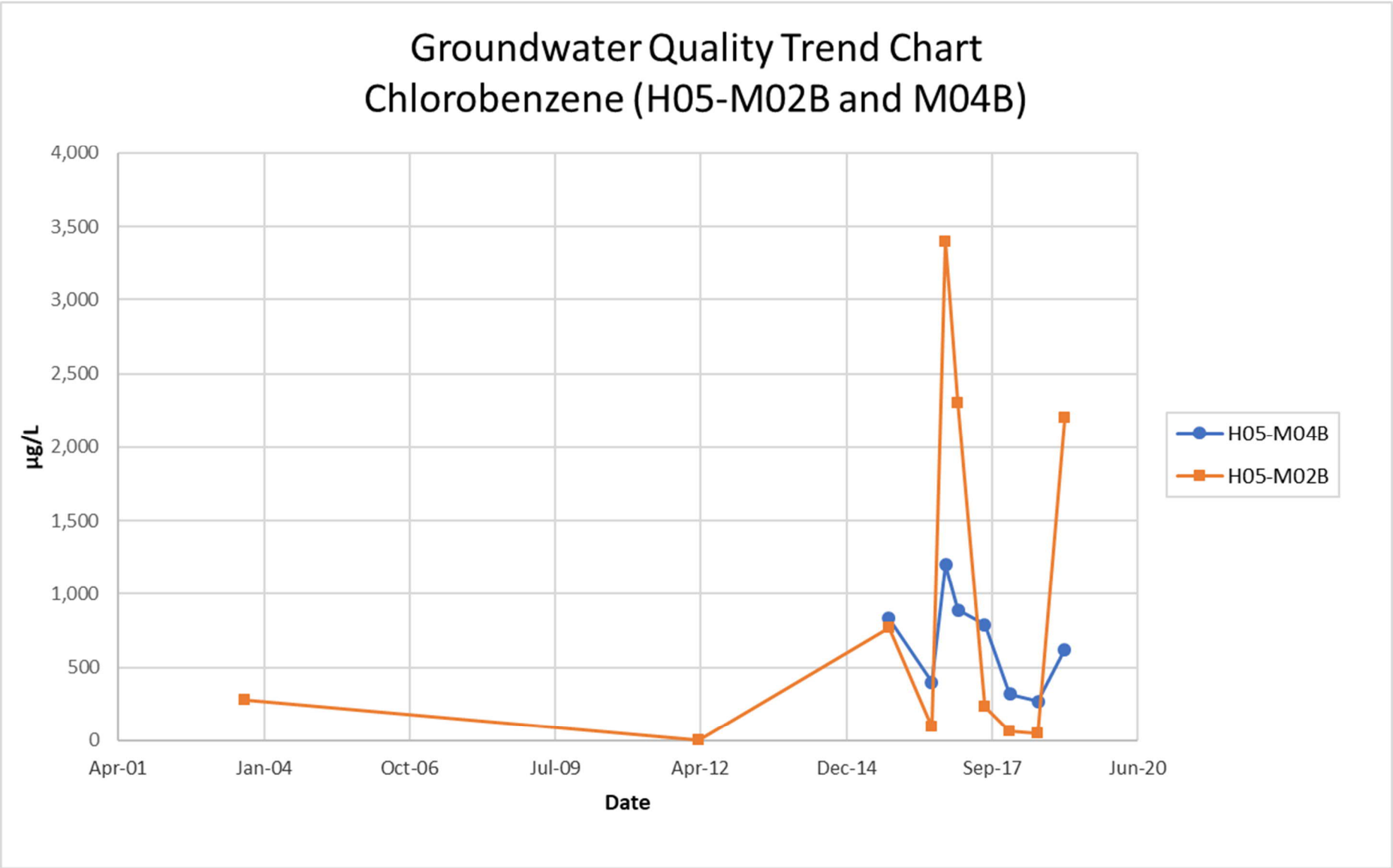

Groundwater Quality Trend Chart
Benzene (H06-M02B)
180
160
140
120
100
80
60
40
20
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

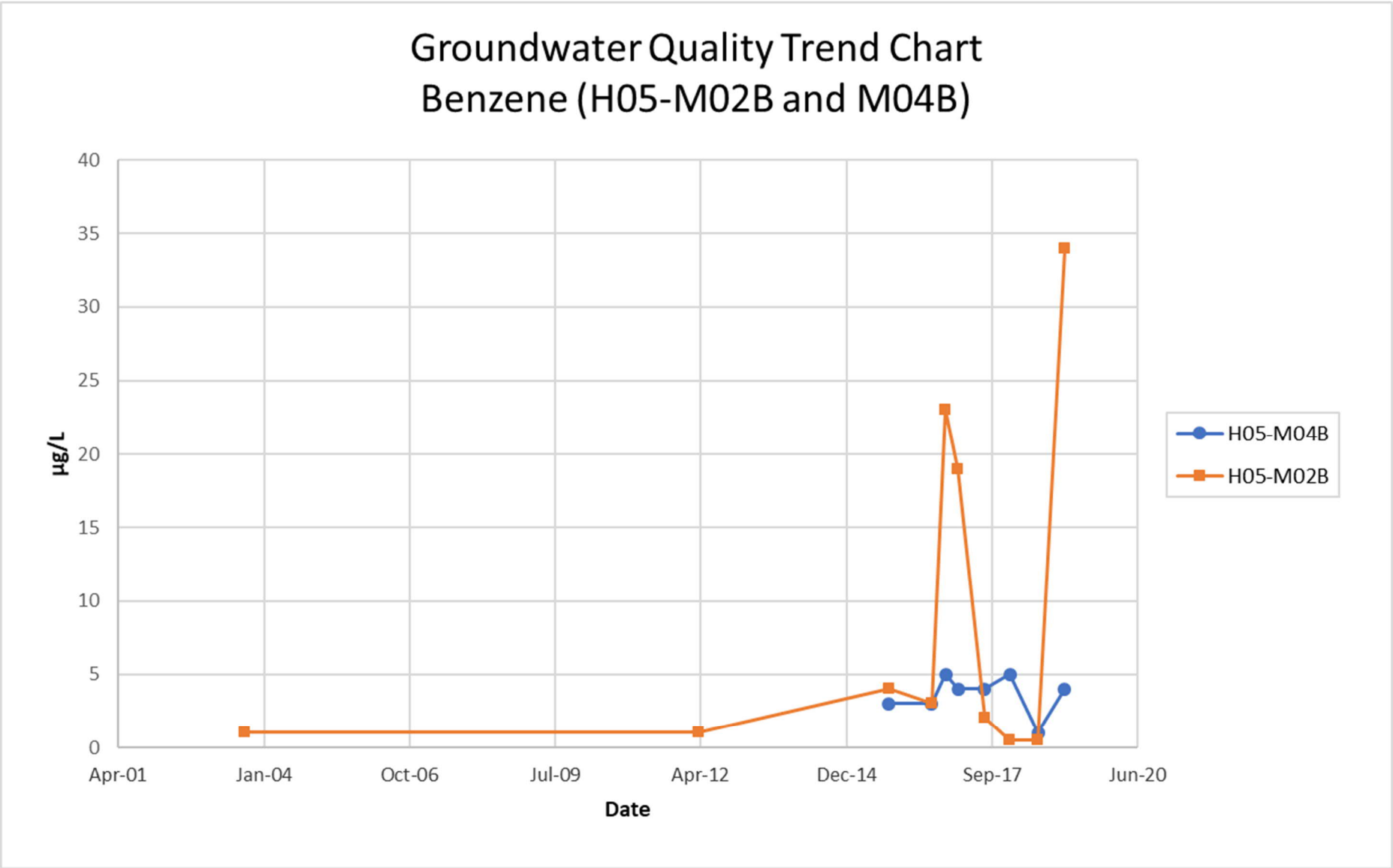

Groundwater Quality Trend Chart
Aniline (H06-M02B)
6,000
5,000
4,000
3,000
2,000
1,000
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

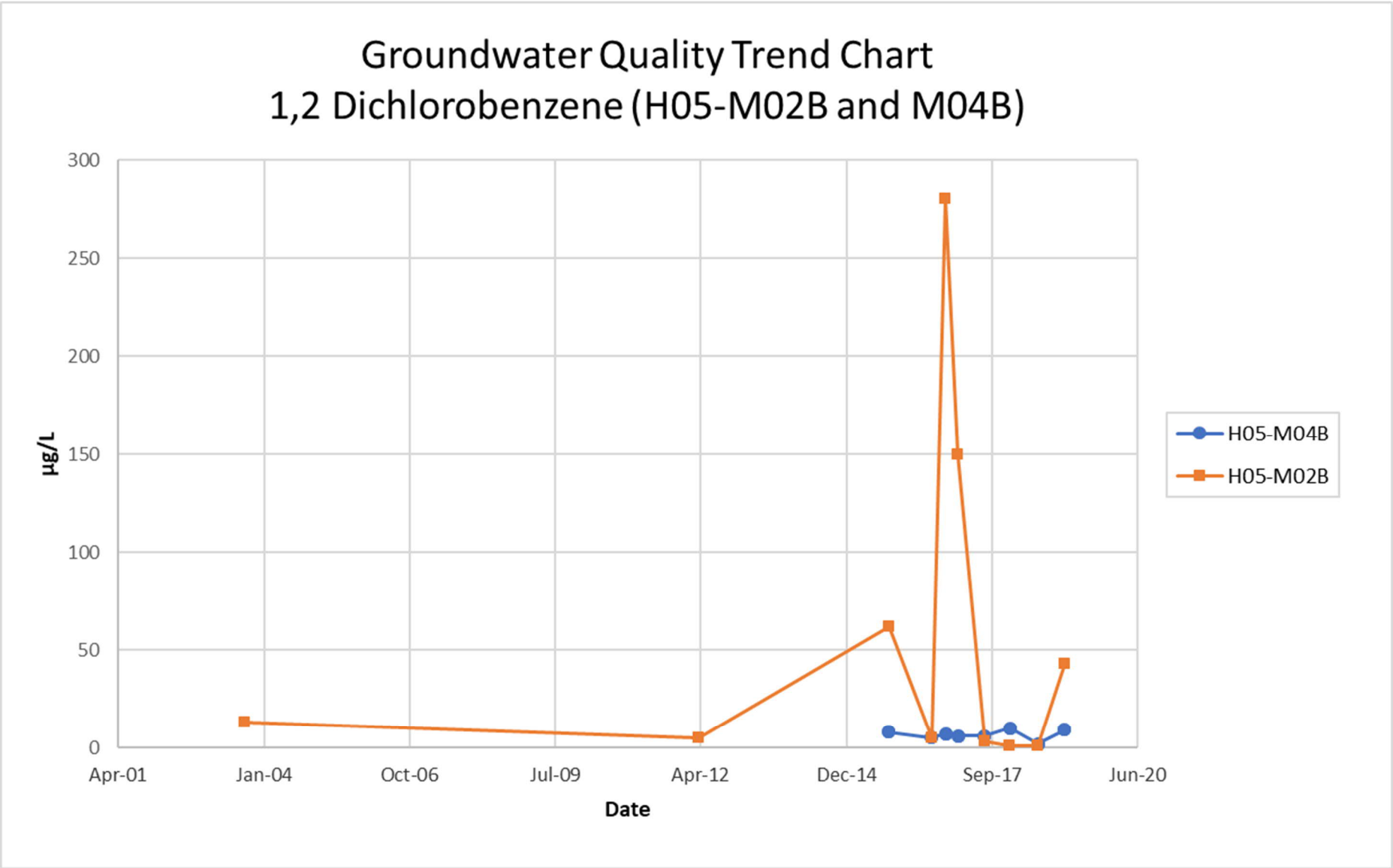

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (H06-M02B)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

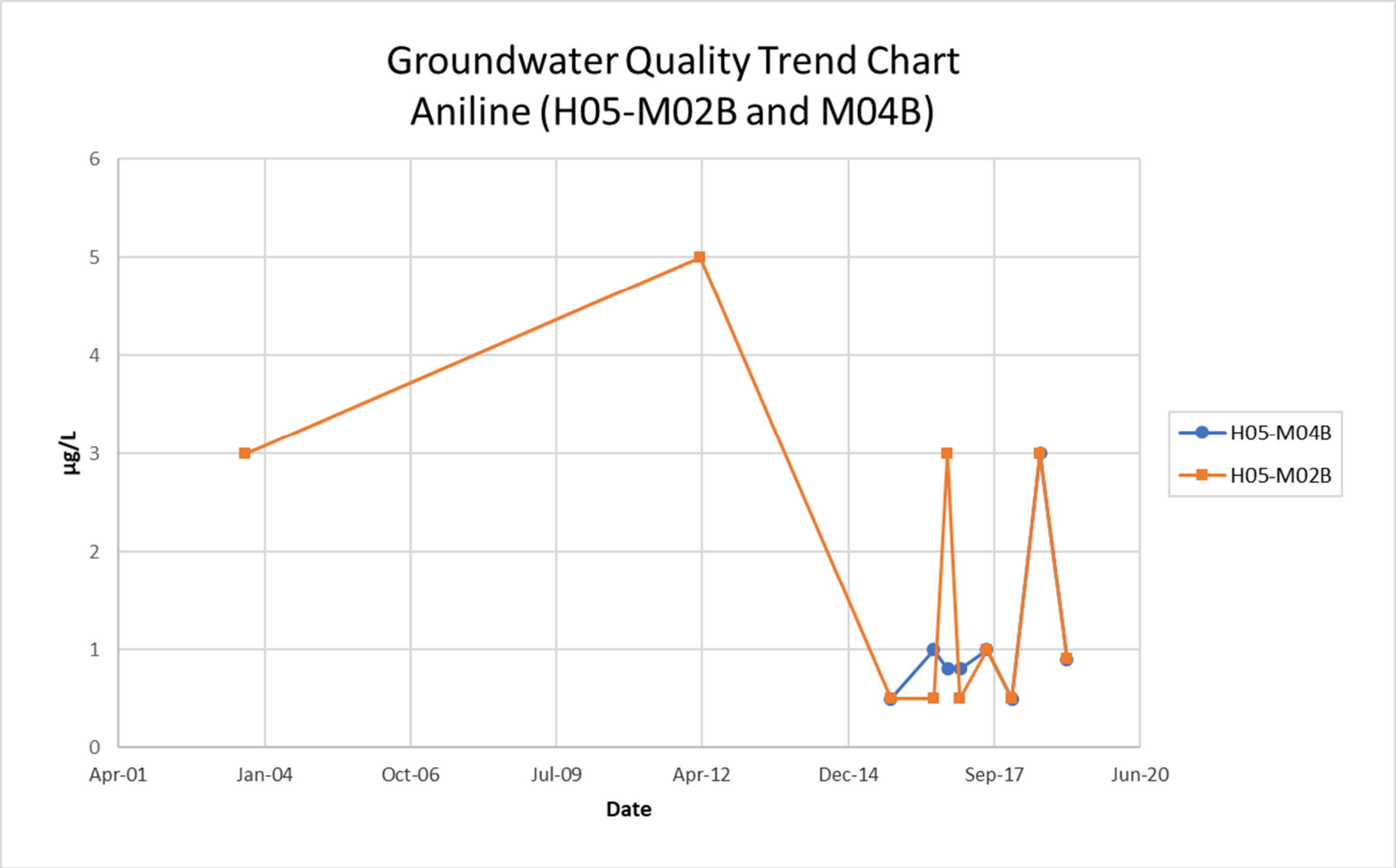

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (H06-M02B)
µg/L
18
16
14
12
10
8
6
4
2
0
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

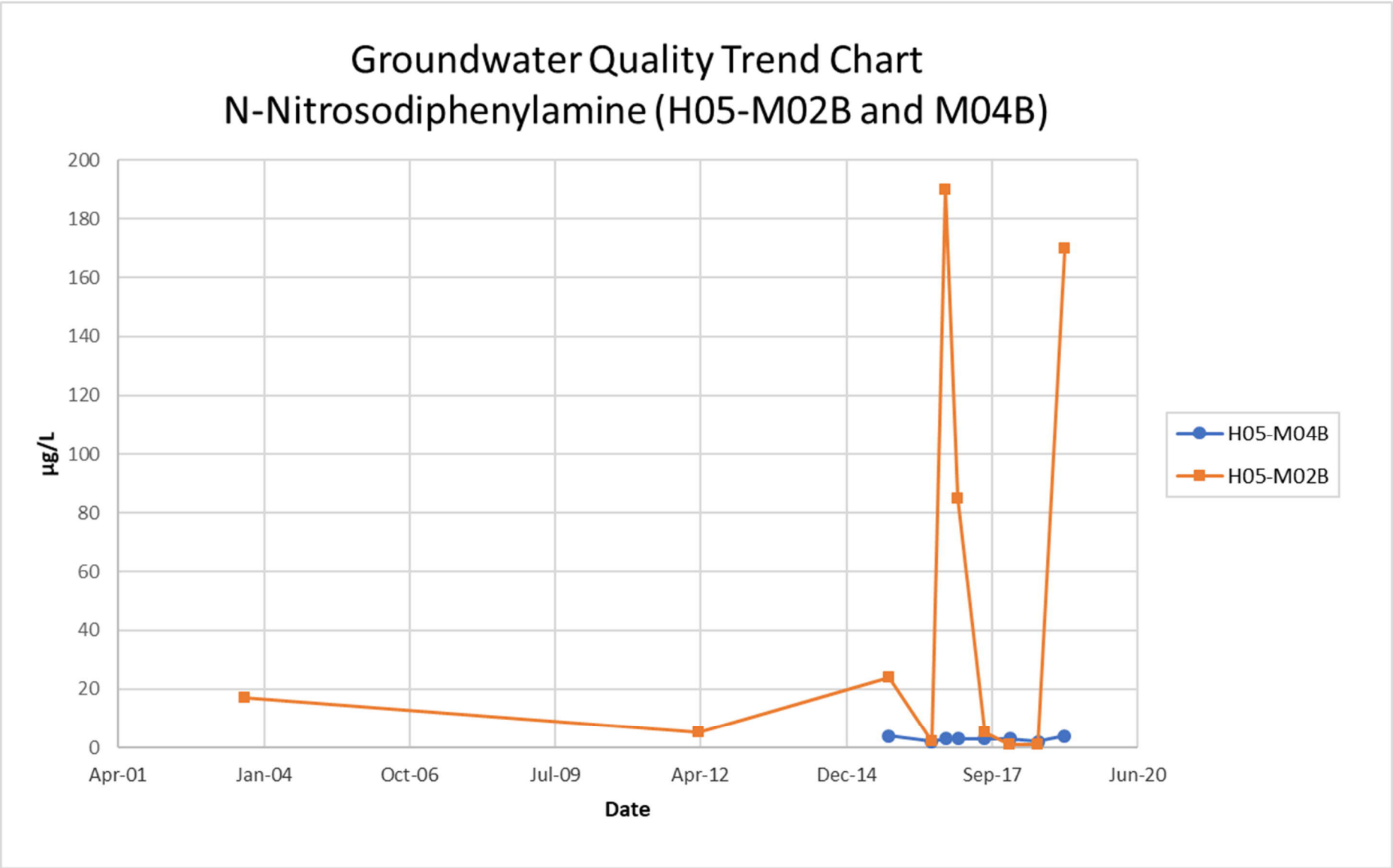

Groundwater Quality Trend Chart
Orthotoluidine (H06-M02B)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
H06-M02B
H06-M02B

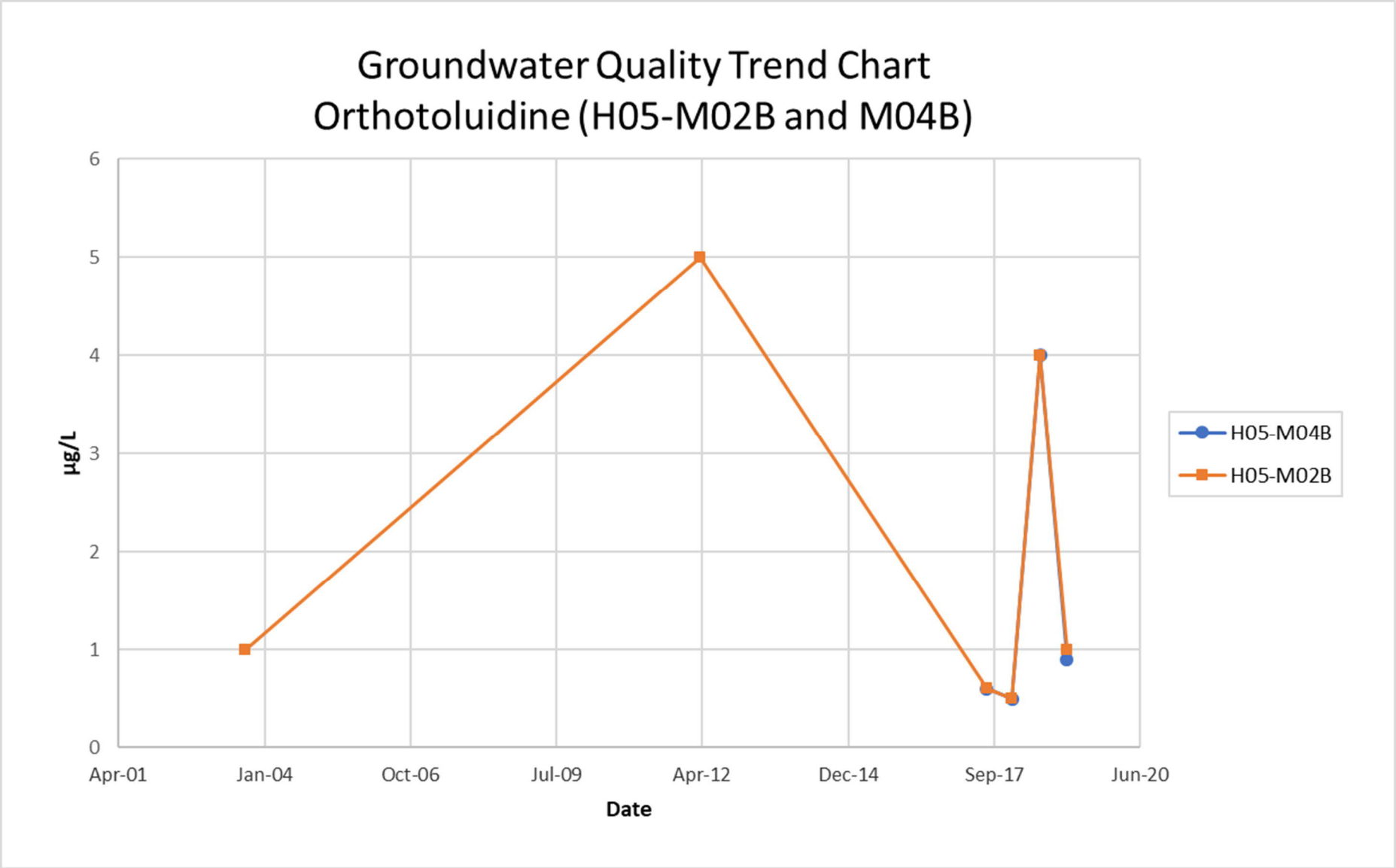

Groundwater Quality Trend Chart
Chlorobenzene (H05-M02B and M04B)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

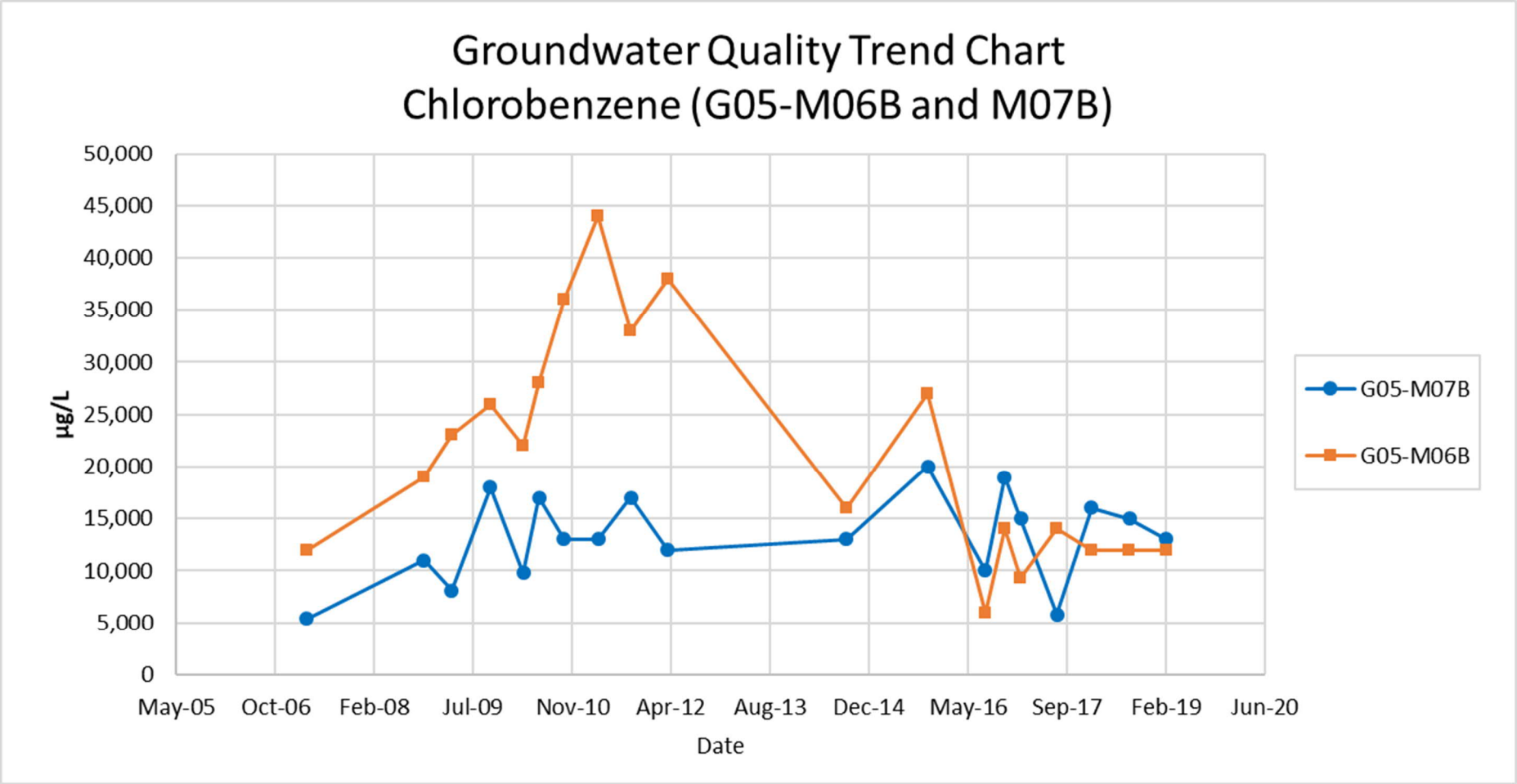

Groundwater Quality Trend Chart
Benzene (H05-M02B and M04B)
40
35
30
25
20
15
10
5
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

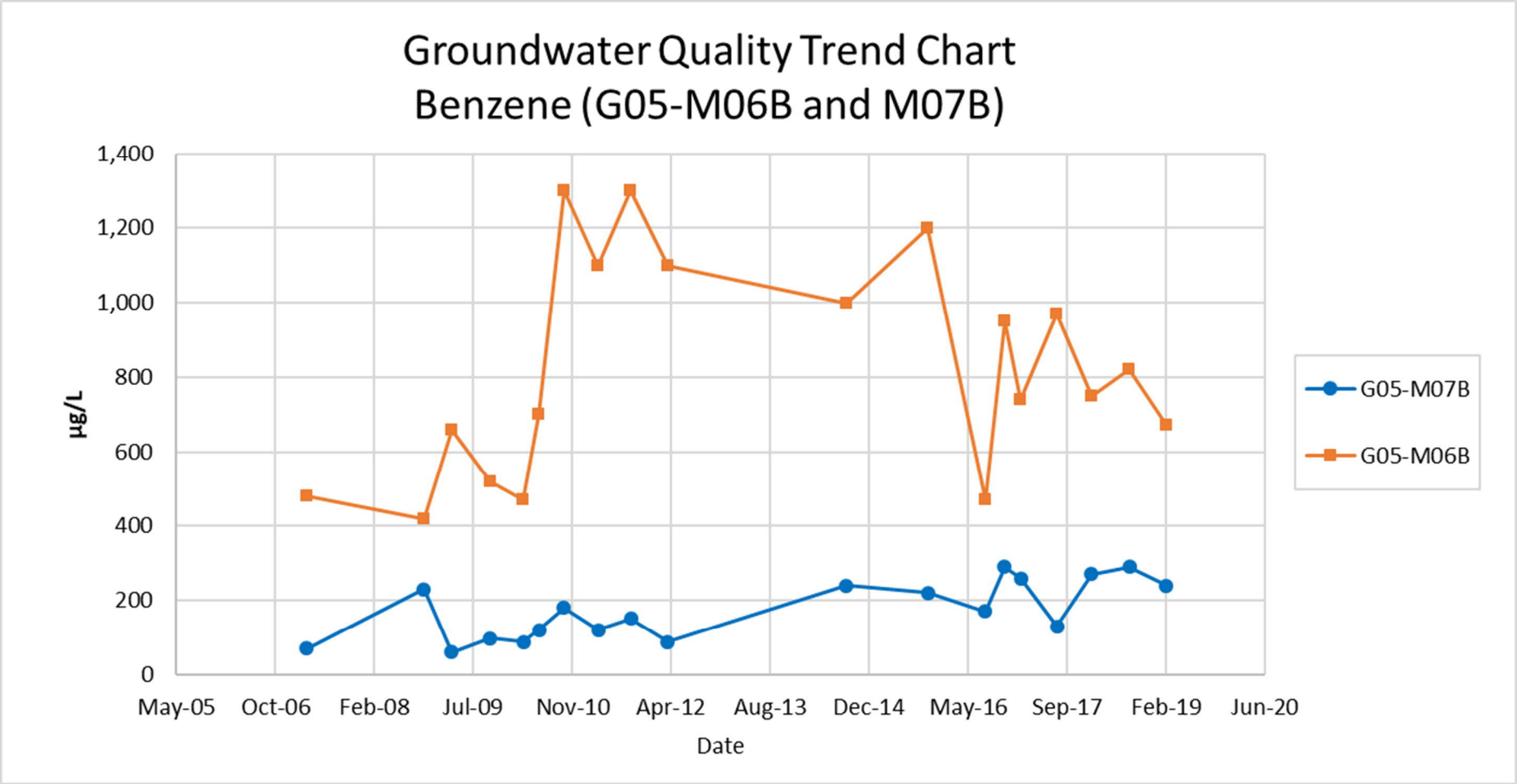

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (H05-M02B and M04B)
300
250
200
150
100
50
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

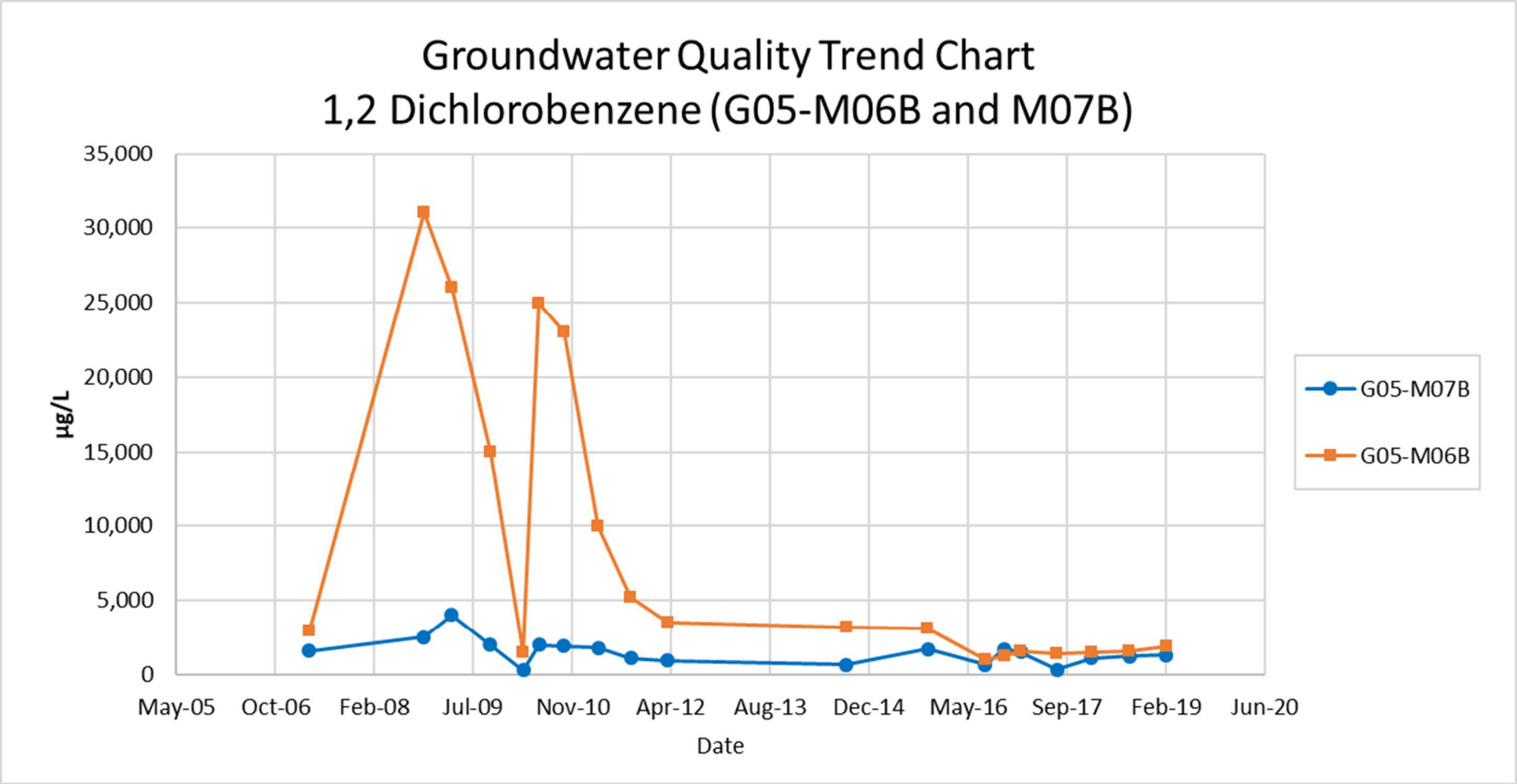

Groundwater Quality Trend Chart
Aniline (H05-M02B and M04B)
µg/L
6
5
4
3
2
1
0
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

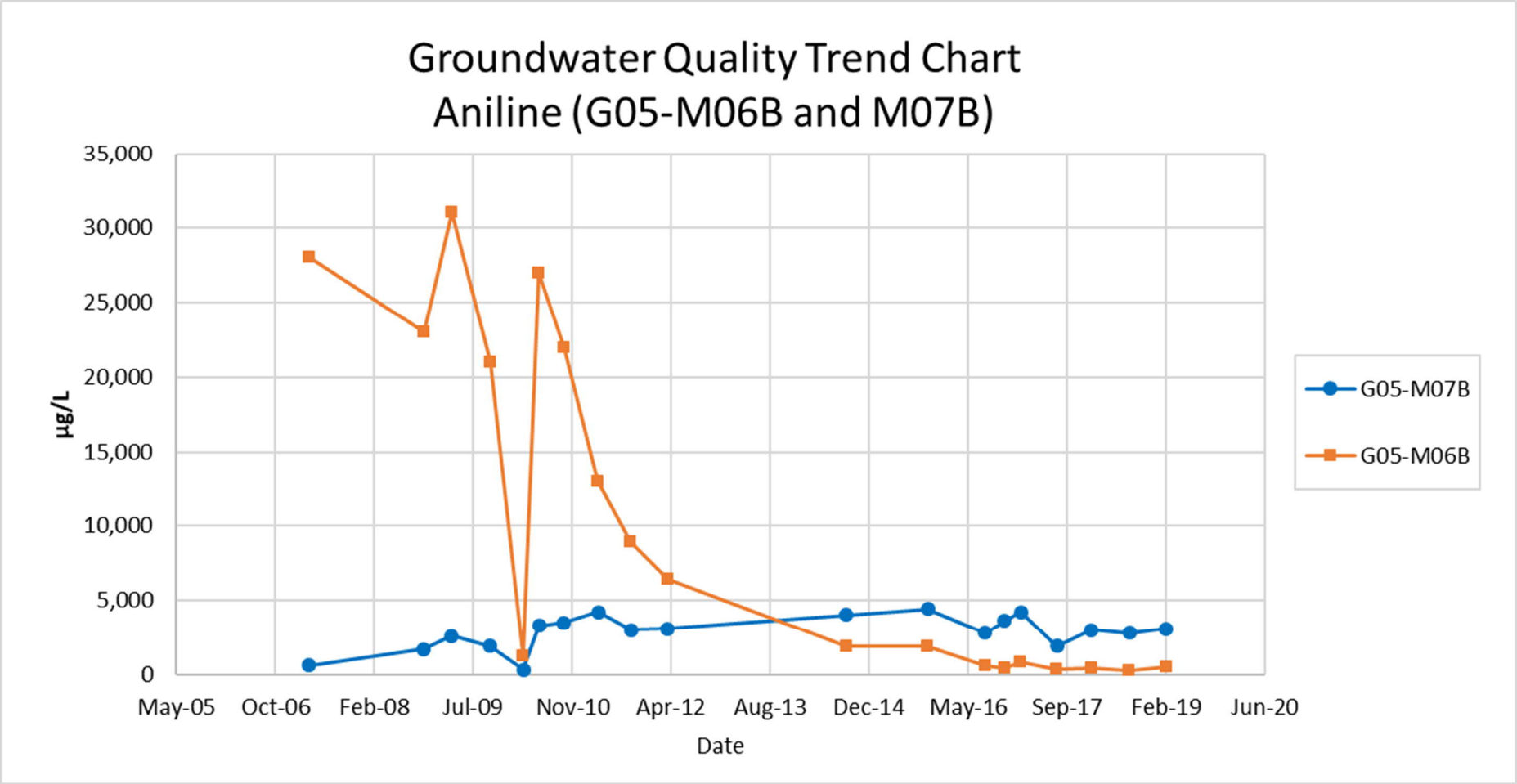

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (H05-M02B and M04B)
µg/L
200
180
160
140
120
100
80
60
40
20
0
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

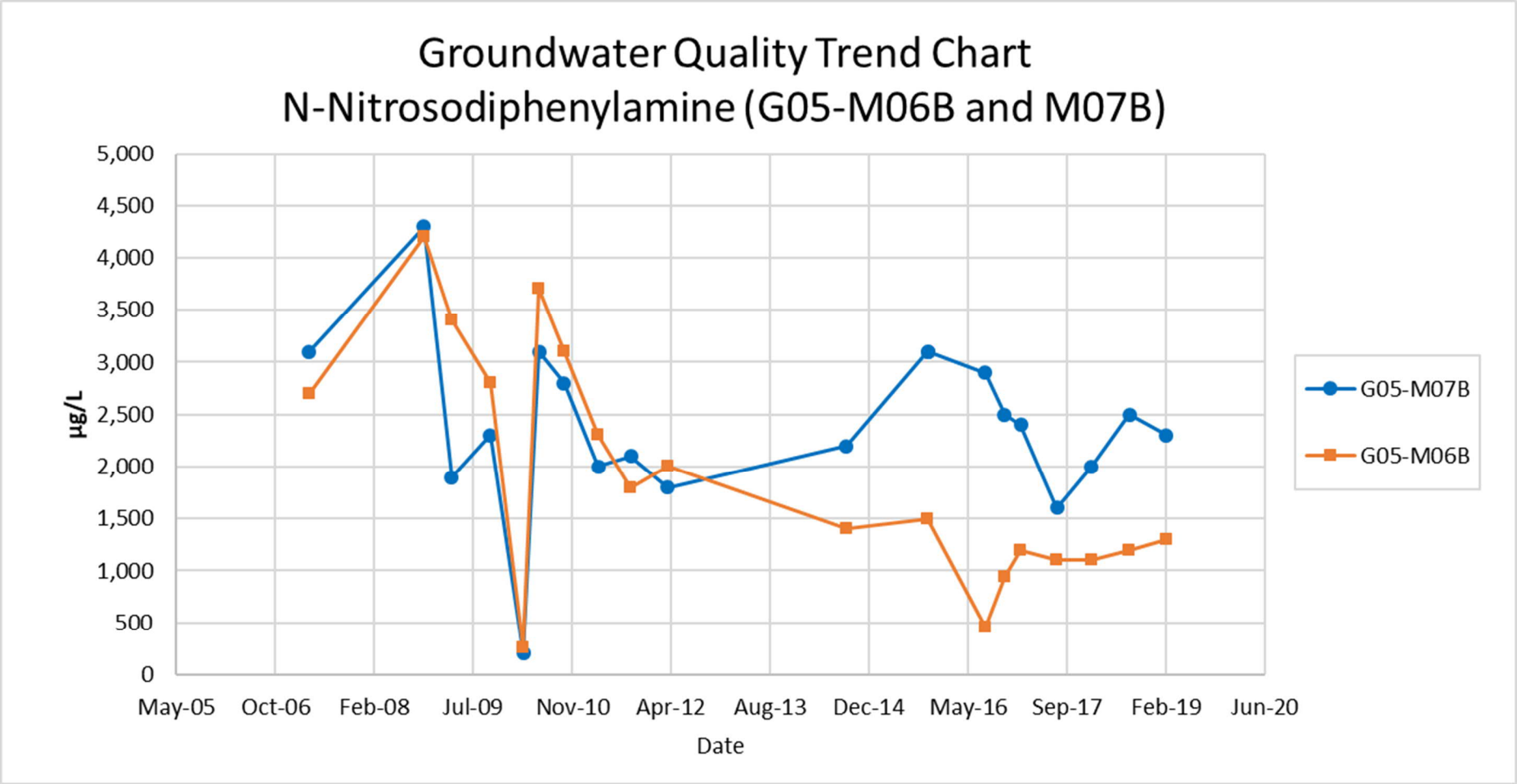

Groundwater Quality Trend Chart
Orthotoluidine (H05-M02B and M04B)
µg/L
6
5
4
3
2
1
0
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M04B
H05-M02B

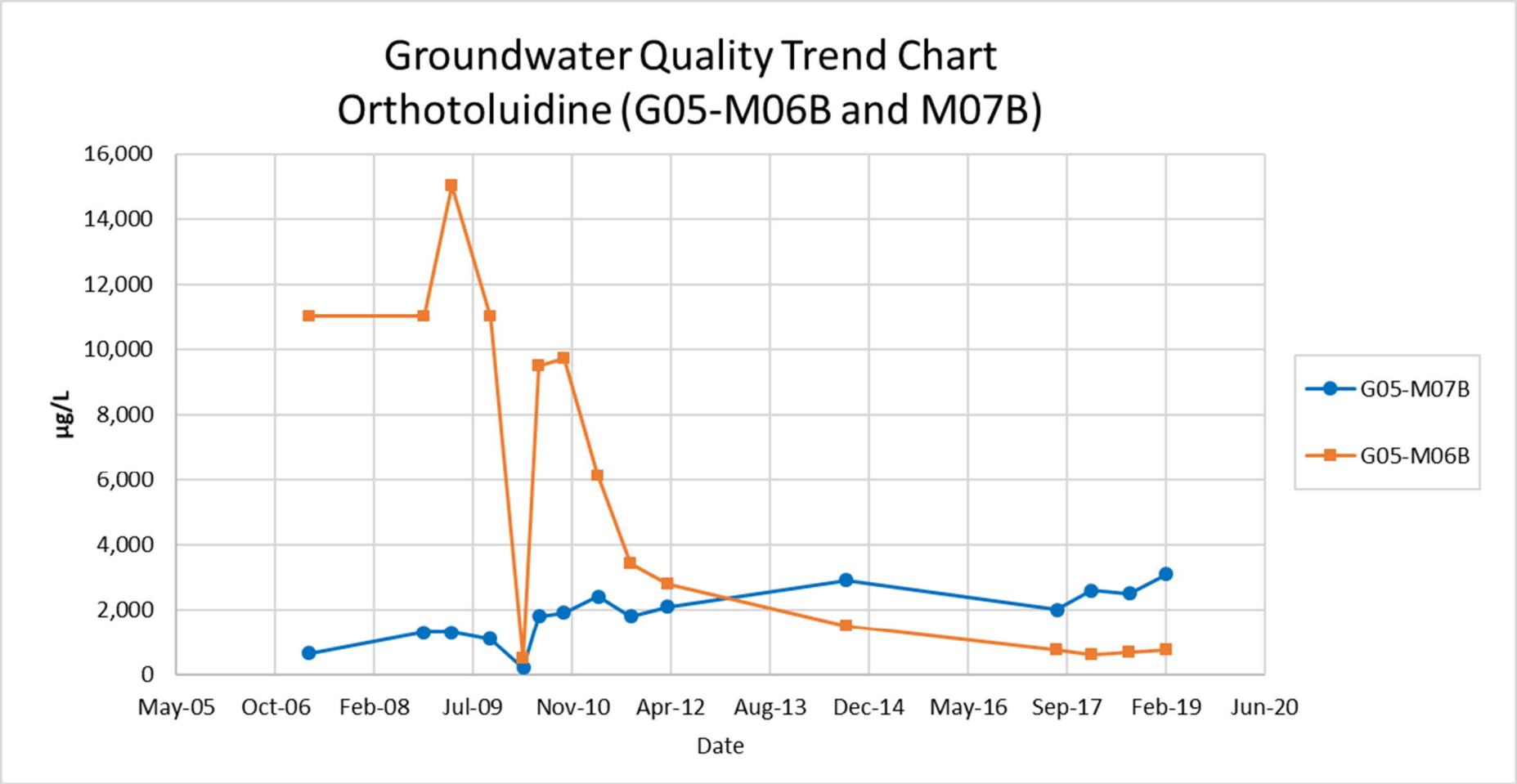

Groundwater Quality Trend Chart
Chlorobenzene (G05-M06B and M07B)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
µg/L
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

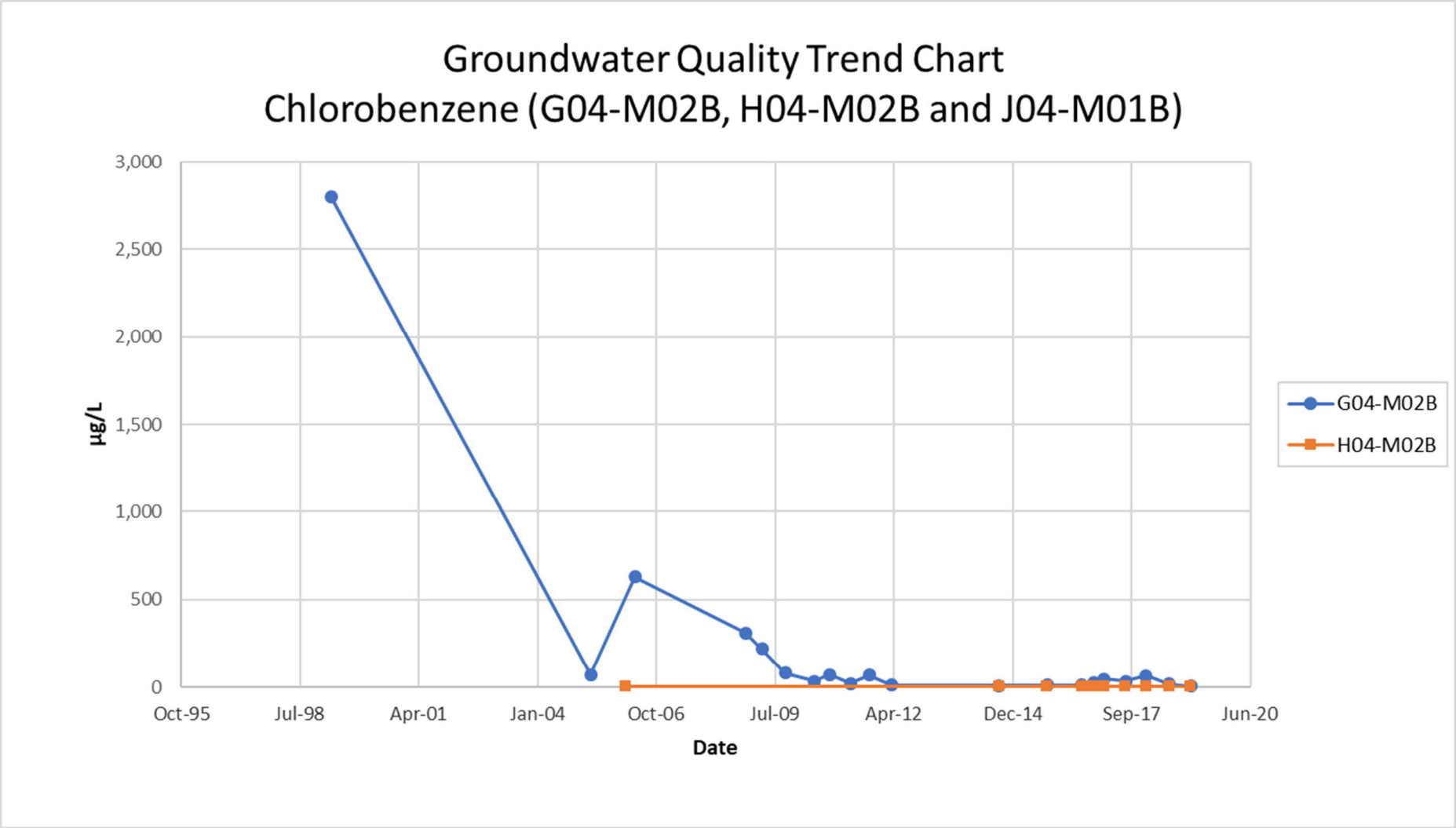

Groundwater Quality Trend Chart
Benzene (G05-M06B and M07B)
1,400
1,200
1,000
800
600
400
200
0
µg/L
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

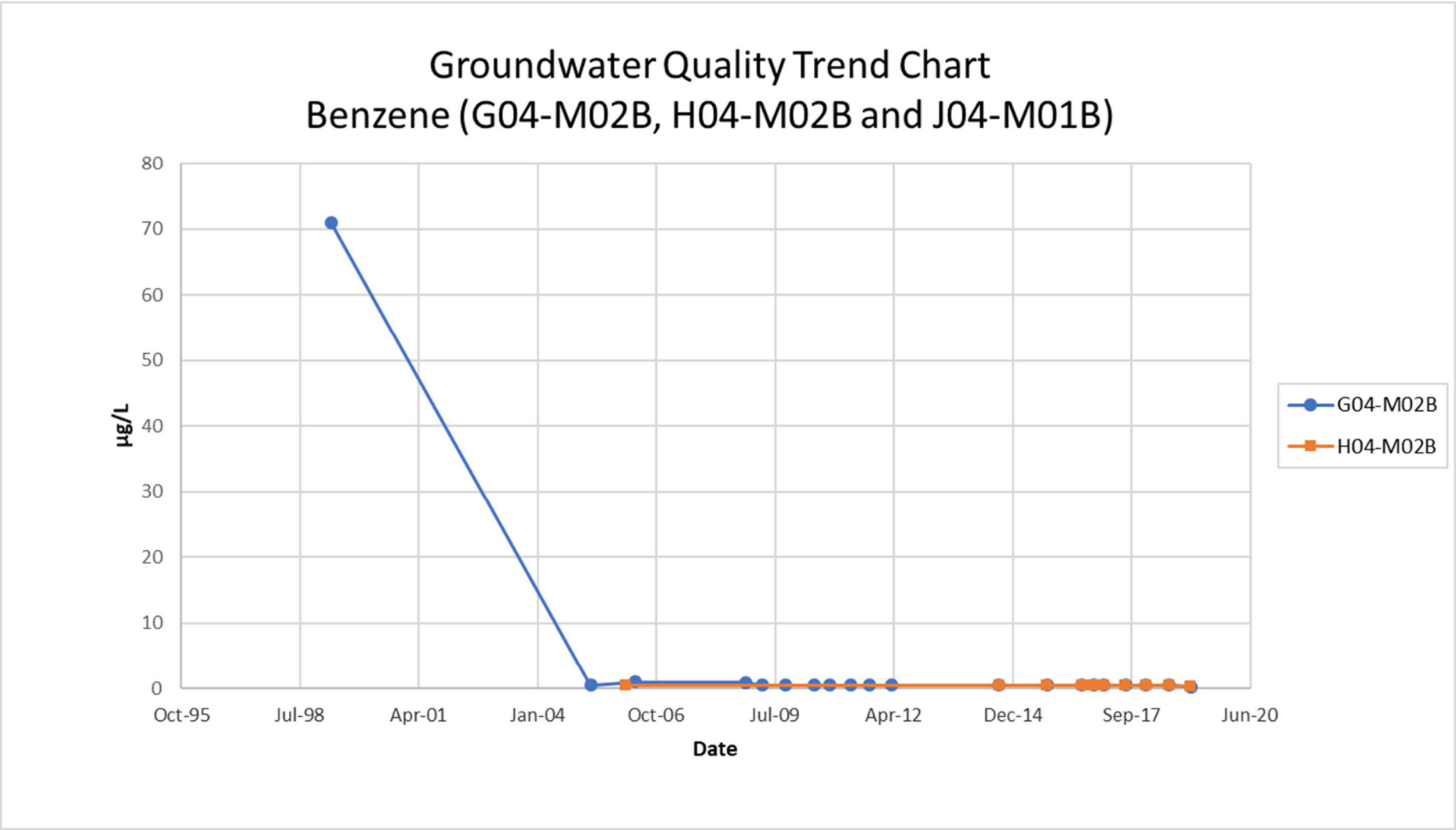

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (G05-M06B and M07B)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
µg/L
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

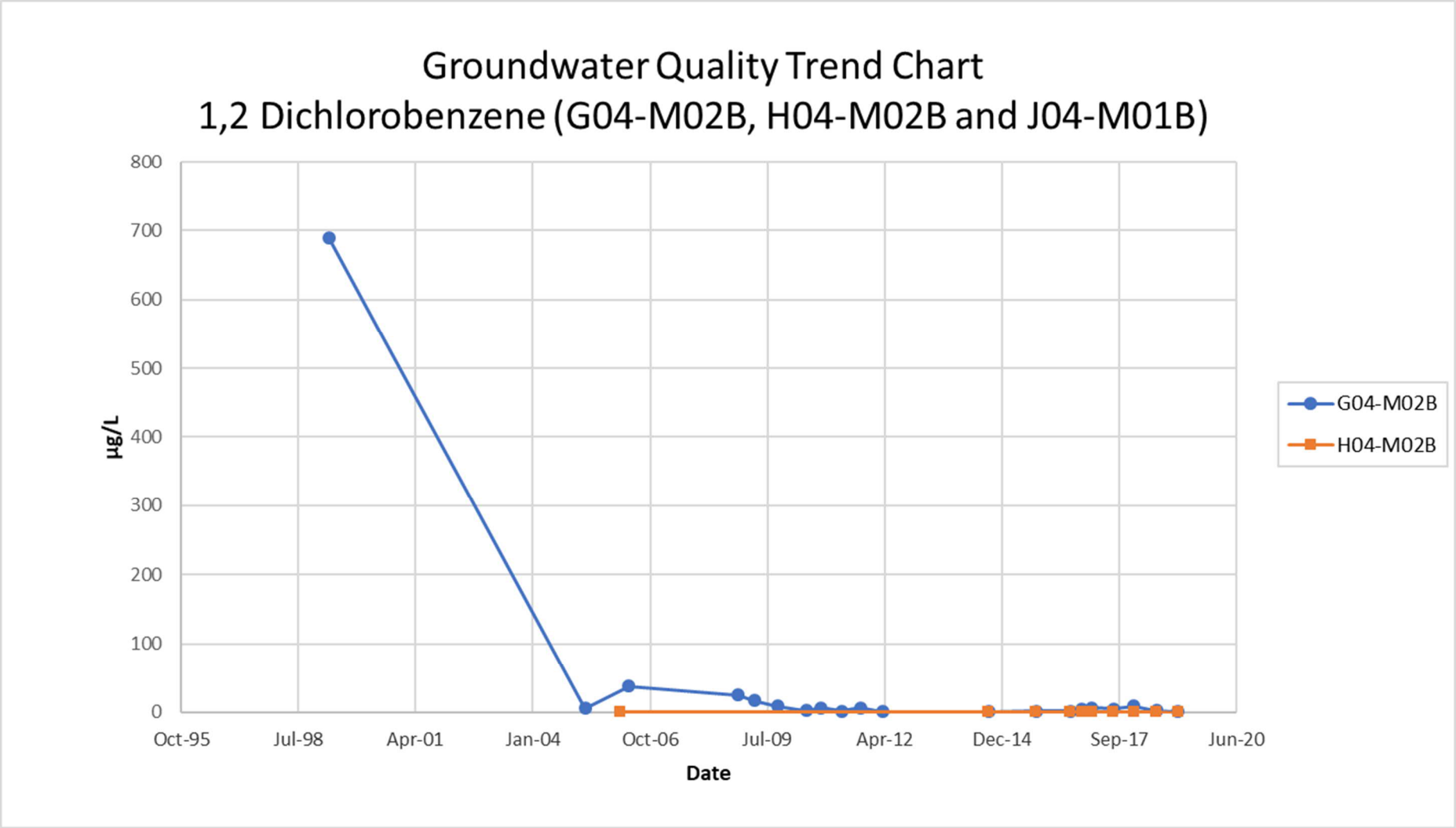

Groundwater Quality Trend Chart
Aniline (G05-M06B and M07B)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
µg/L
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

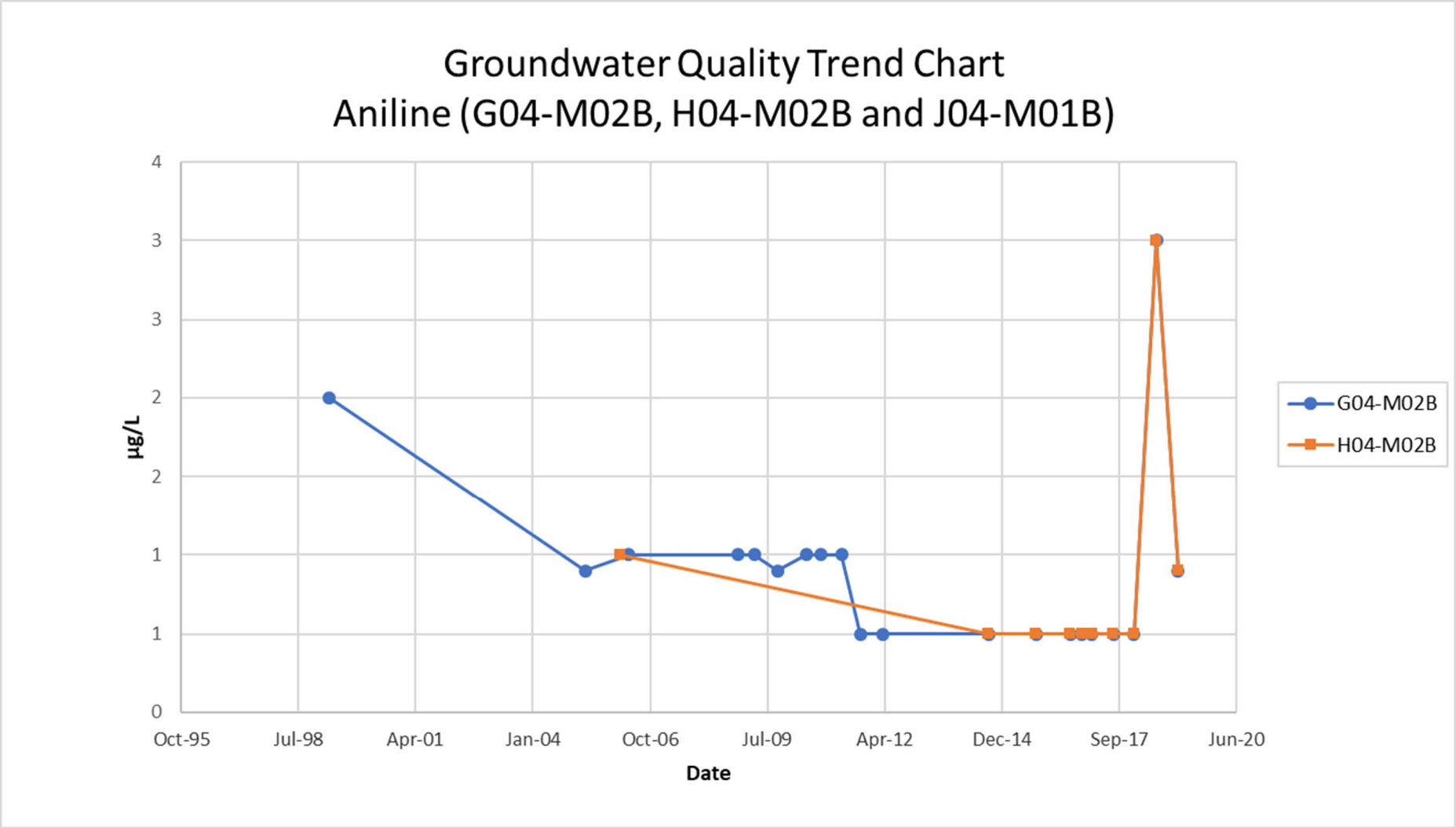

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (G05-M06B and M07B)
µg/L
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

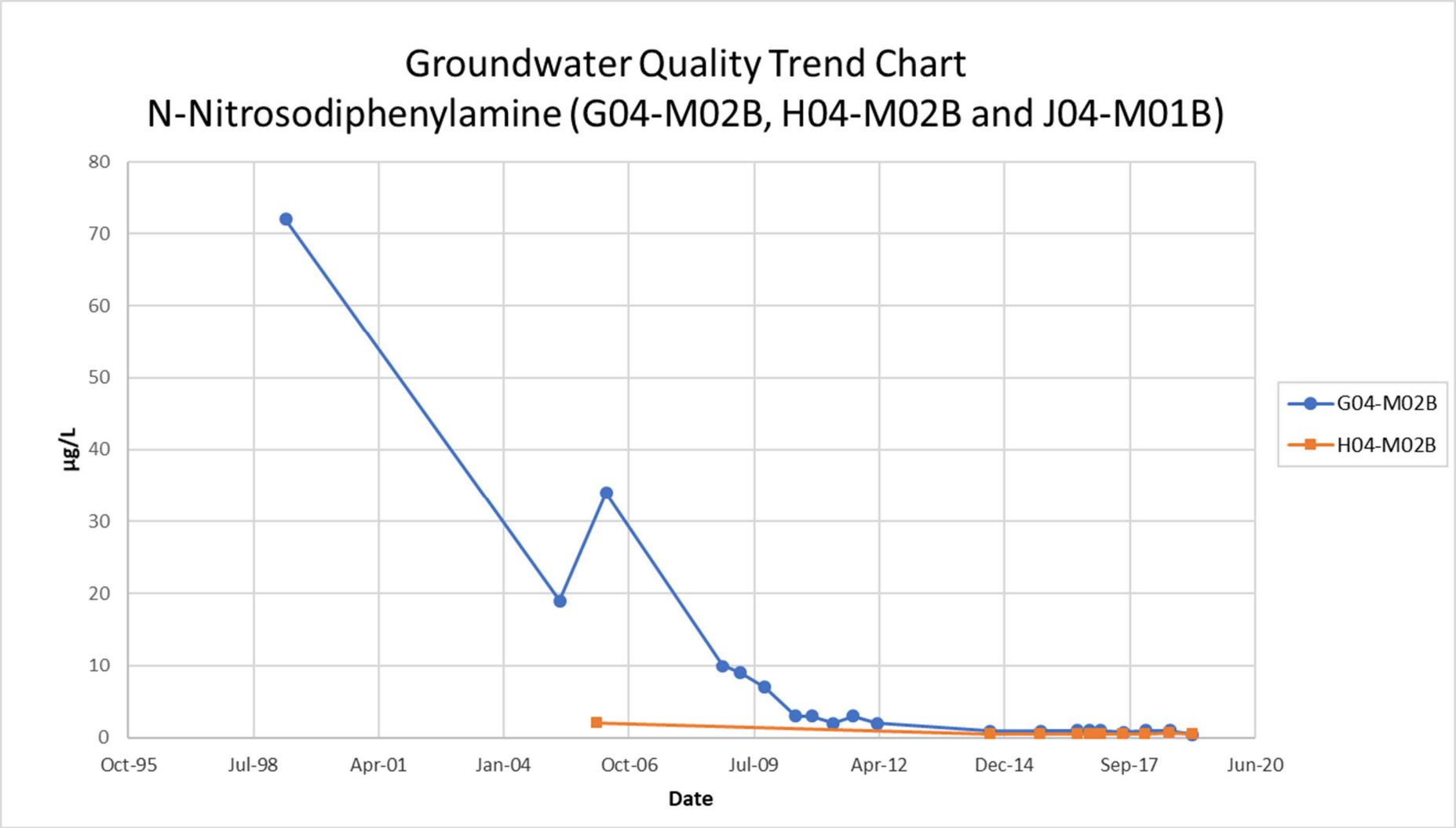

Groundwater Quality Trend Chart
Orthotoluidine (G05-M06B and M07B)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
µg/L
May-05
Oct-06
Feb-08
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Date
G05-M07B
G05-M06B

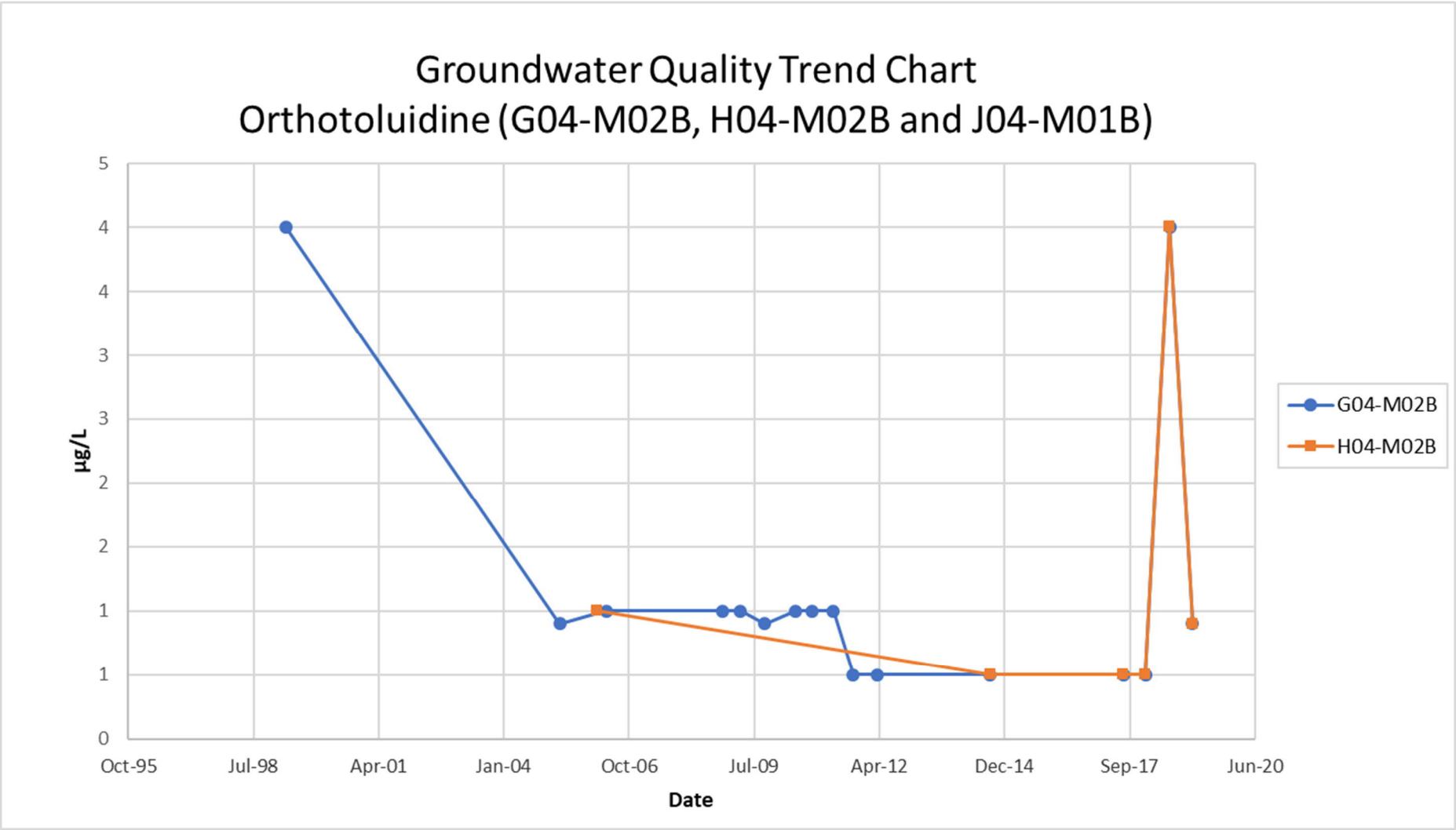

Groundwater Quality Trend Chart
Chlorobenzene (G04-M02B, H04-M02B and J04-M01B)
3,000
2,500
2,000
1,500
1,000
500
0
µg/L
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

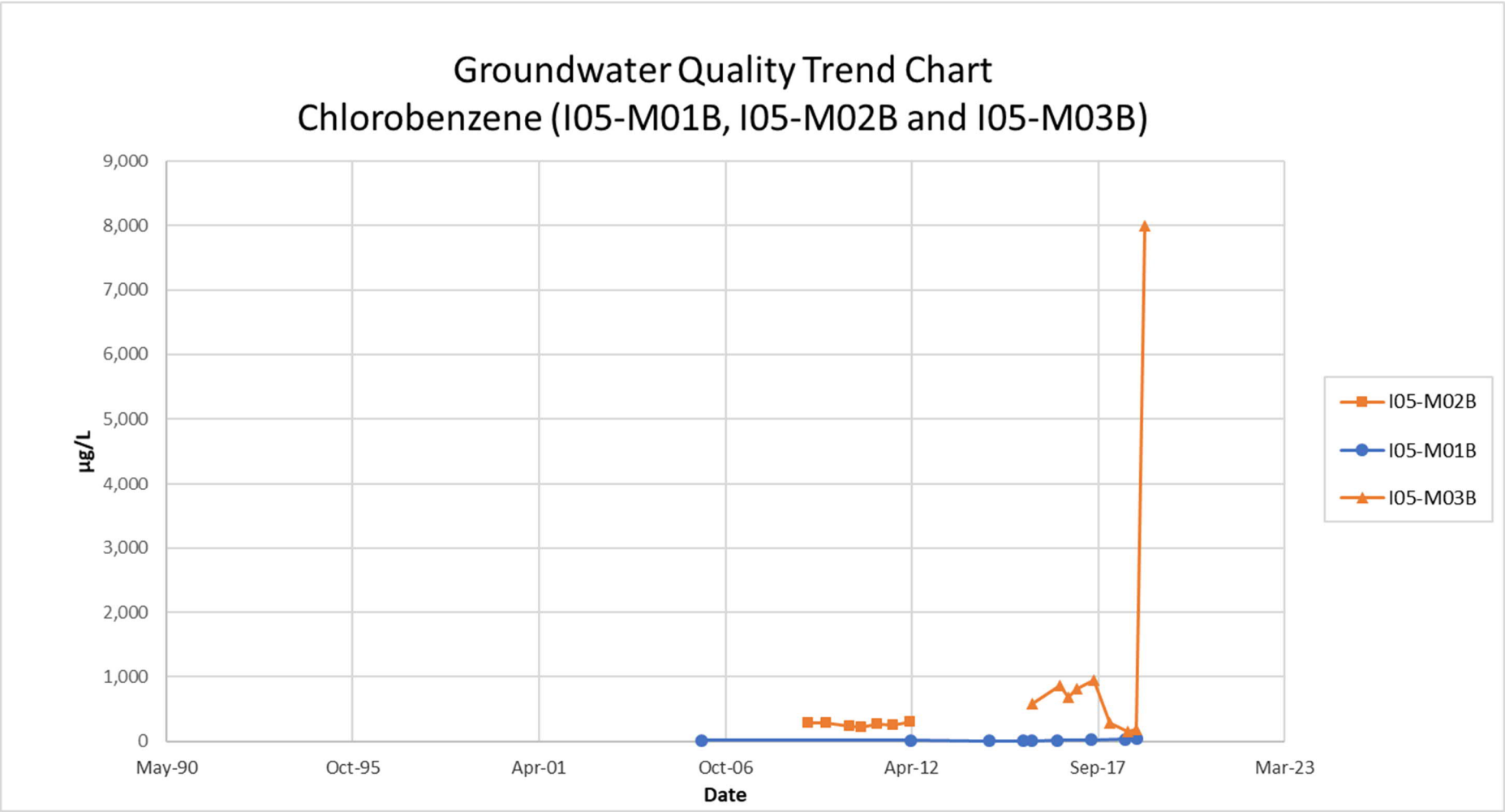

Groundwater Quality Trend Chart
Benzene (G04-M02B, H04-M02B and J04-M01B)
80
70
60
50
40
30
20
10
0
µg/L
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

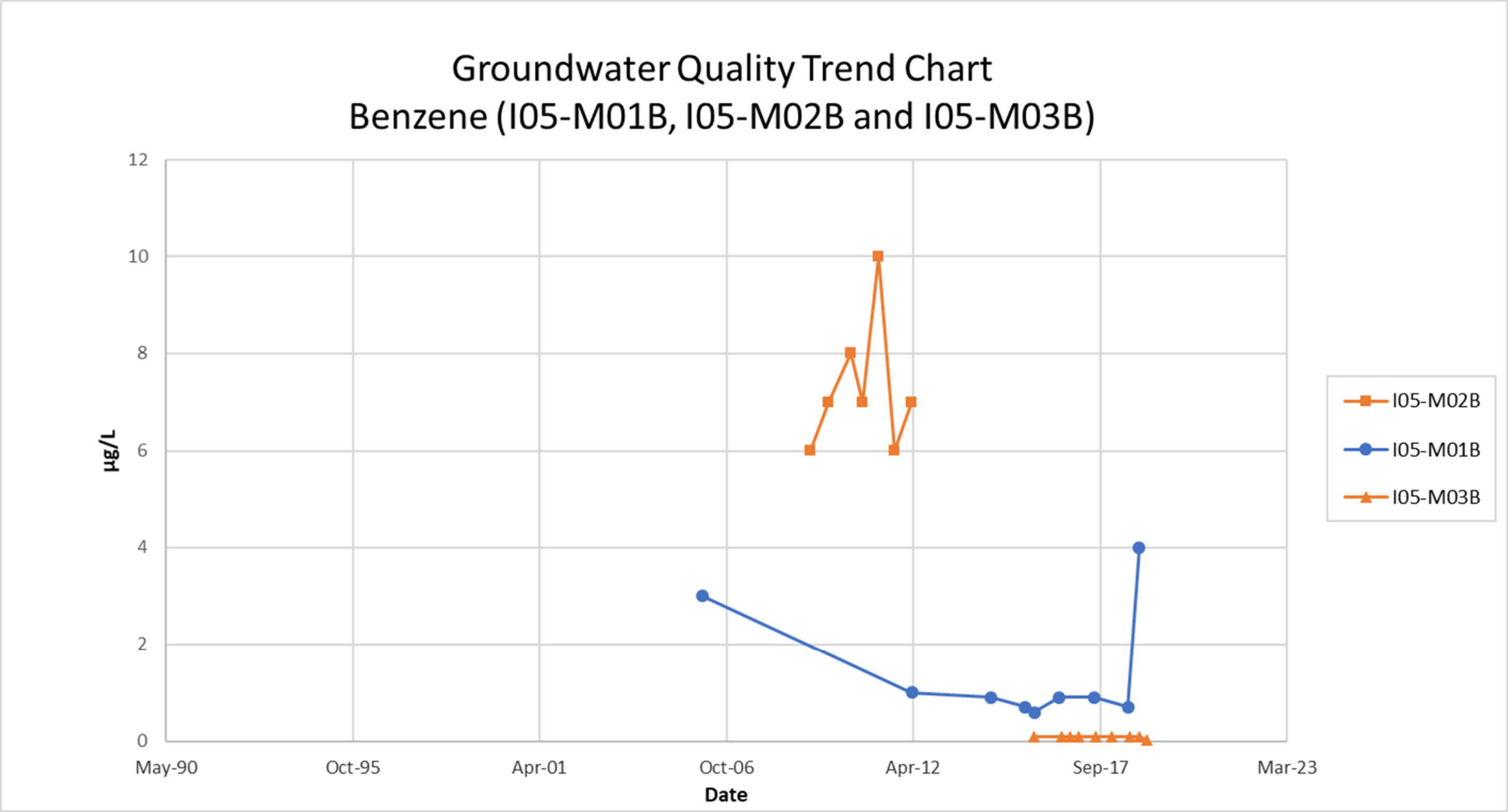

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (G04-M02B, H04-M02B and J04-M01B)
800
700
600
500
400
300
200
100
0
µg/L
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

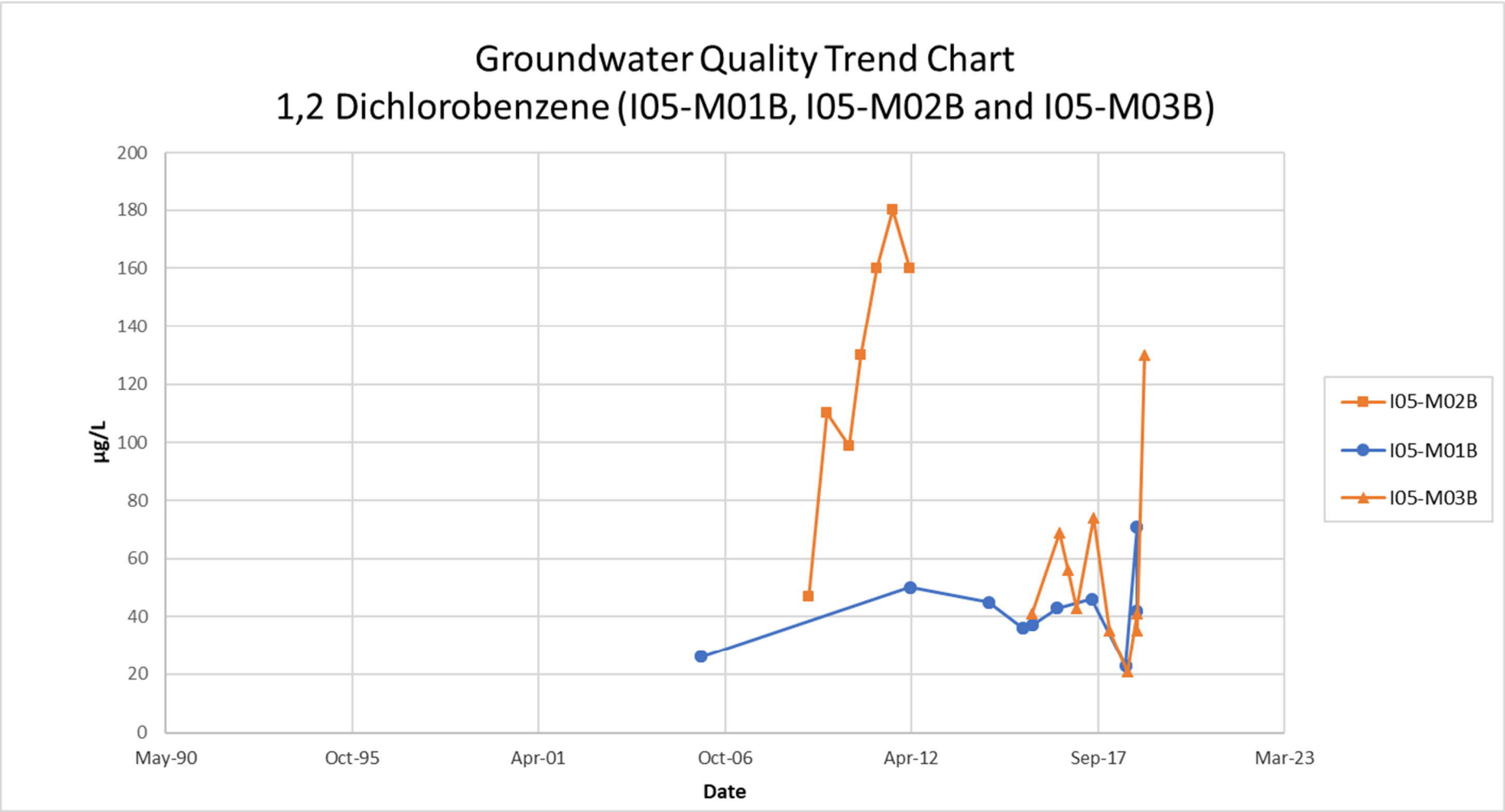

Groundwater Quality Trend Chart
Aniline (G04-M02B, H04-M02B and J04-M01B)
µg/L
4
3
3
2
2
1
1
0
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

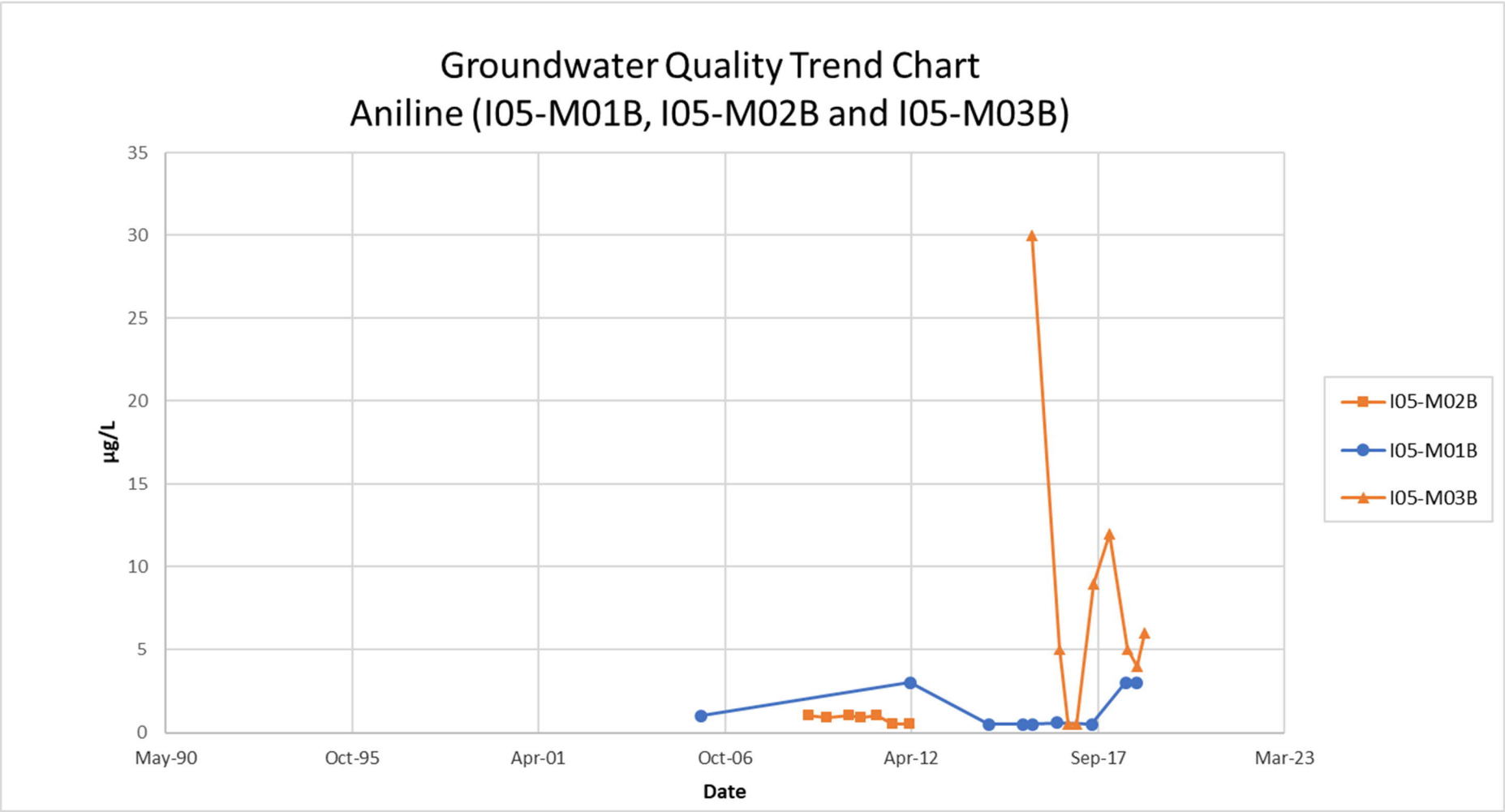

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (G04-M02B, H04-M02B and J04-M01B)
µg/L
80
70
60
50
40
30
20
10
0
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

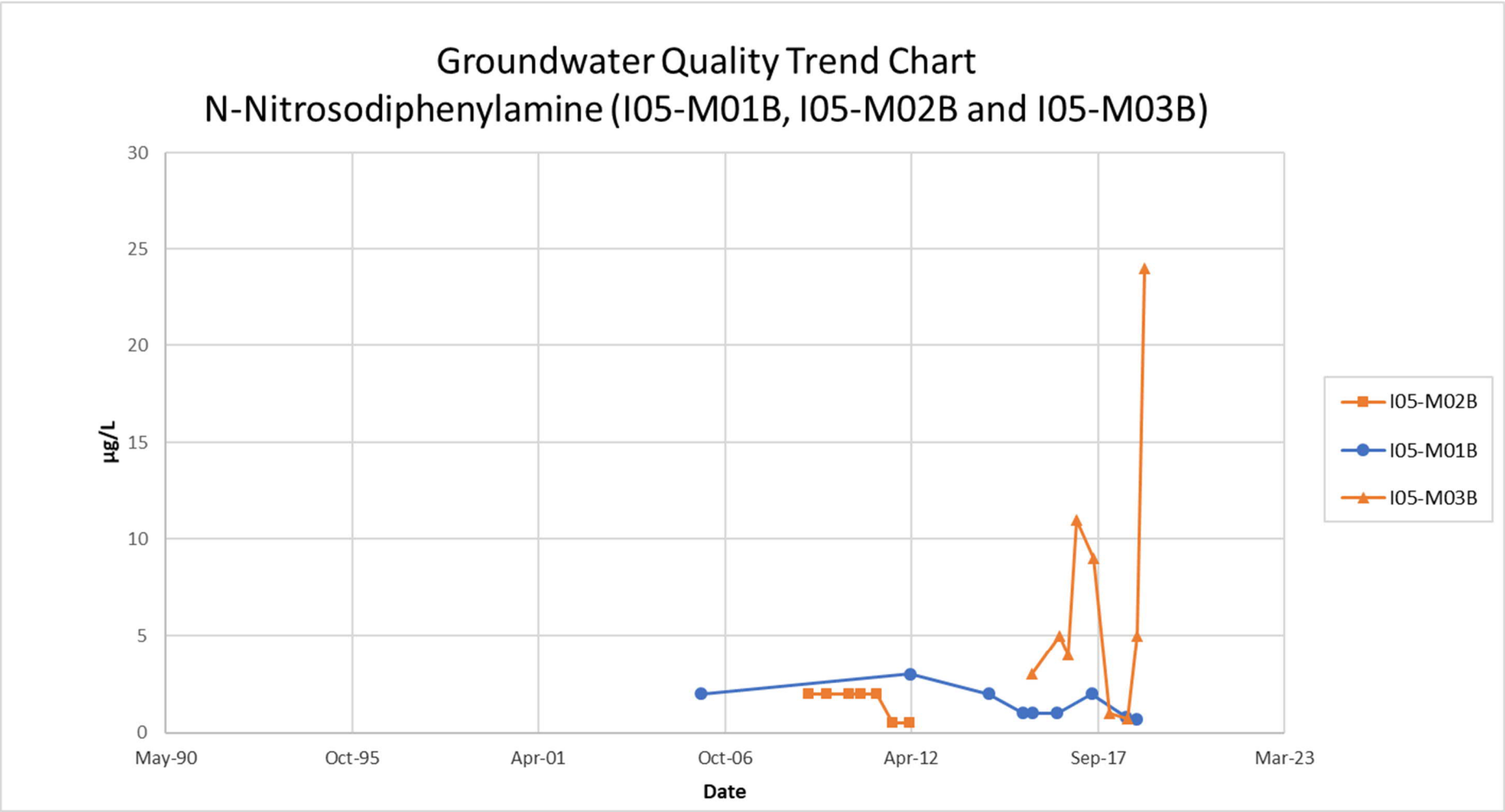

Groundwater Quality Trend Chart
Orthotoluidine (G04-M02B, H04-M02B and J04-M01B)
µg/L
5
4
4
3
3
2
2
1
1
0
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
G04-M02B
H04-M02B

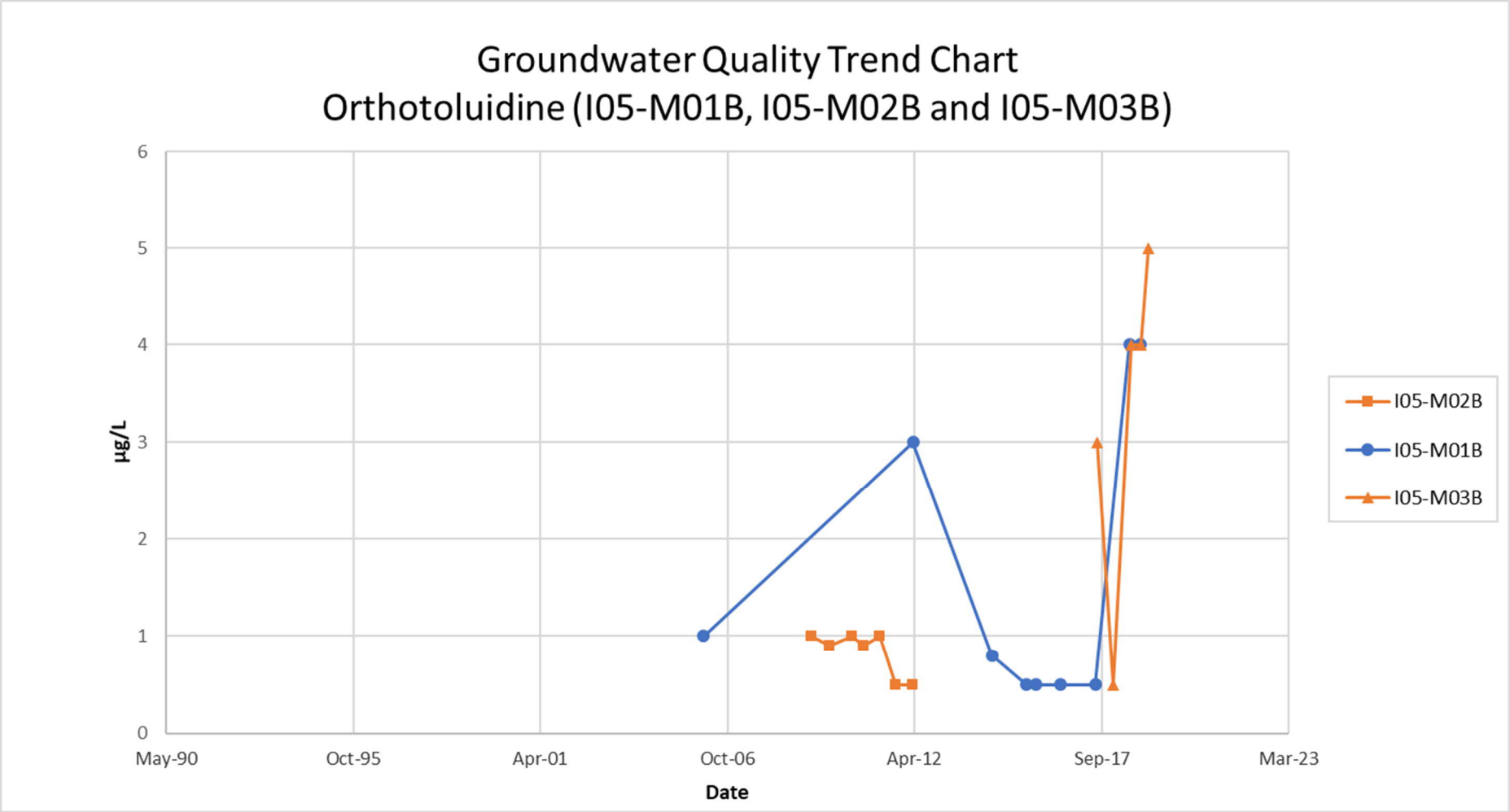

Groundwater Quality Trend Chart
Chlorobenzene (I05-M01B, I05-M02B and I05-M03B)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

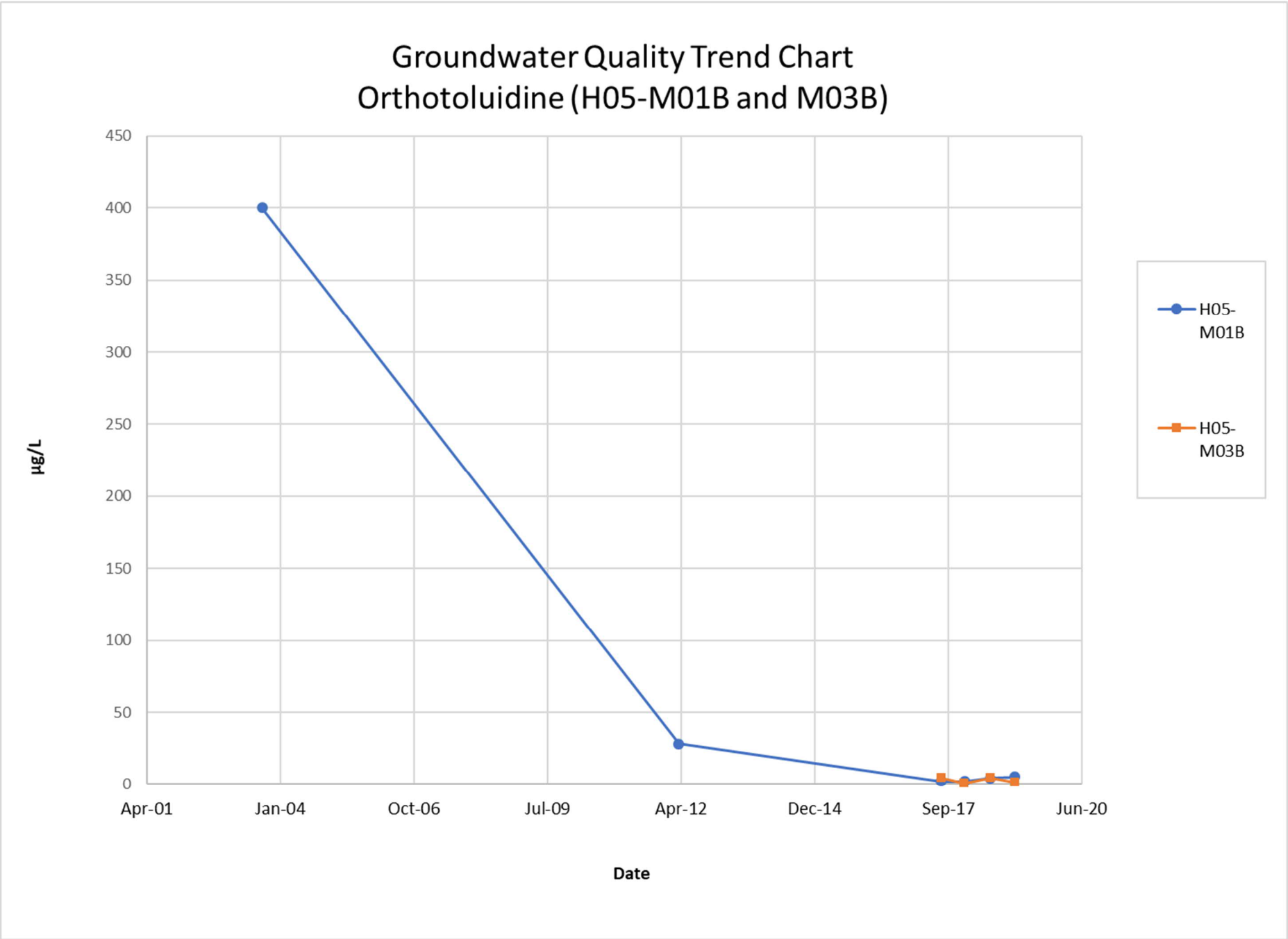

Groundwater Quality Trend Chart
Benzene (I05-M01B, I05-M02B and I05-M03B)
µg/L
12
10
8
6
4
2
0
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

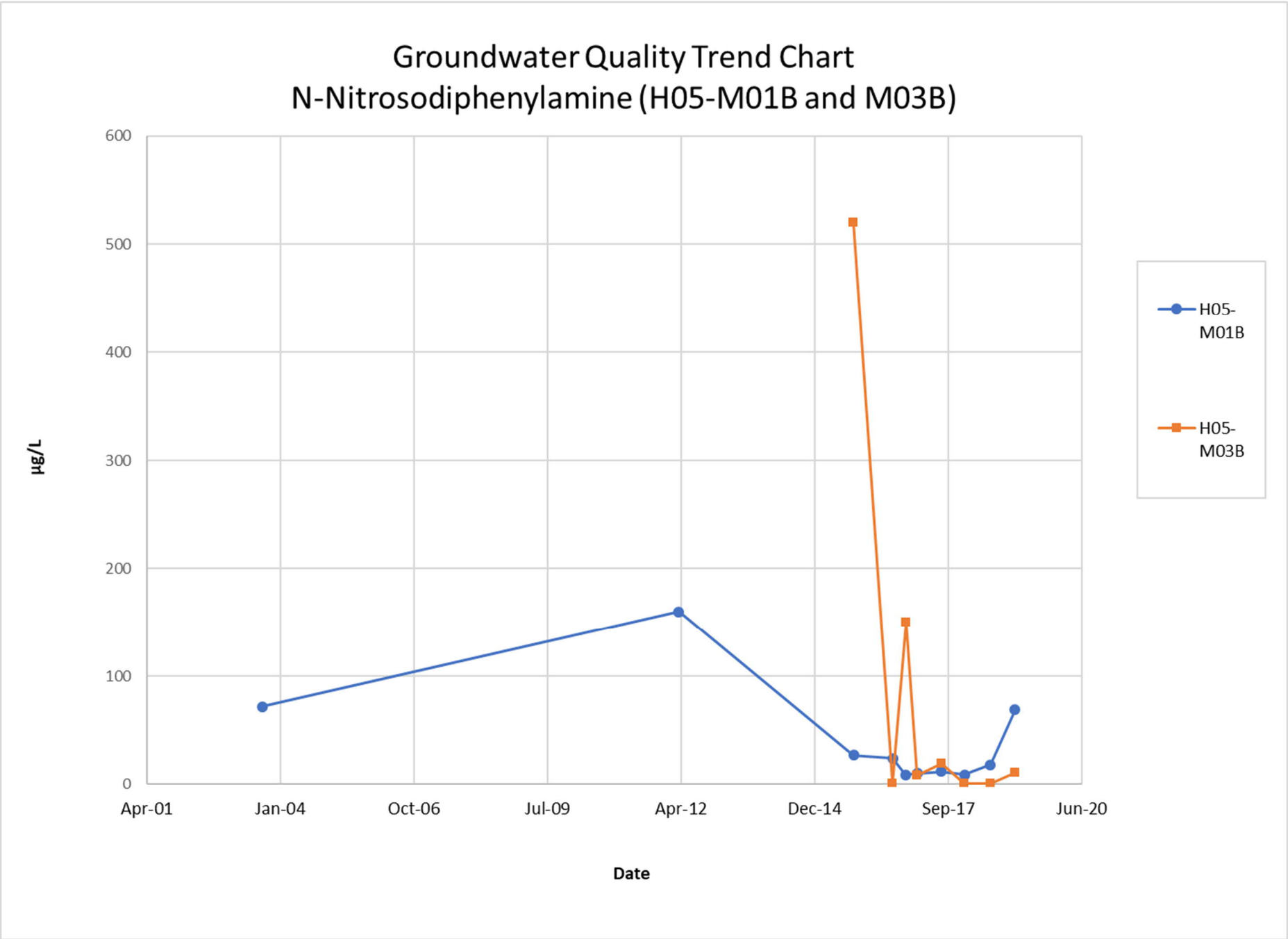

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (I05-M01B, I05-M02B and I05-M03B)
µg/L
200
180
160
140
120
100
80
60
40
20
0
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

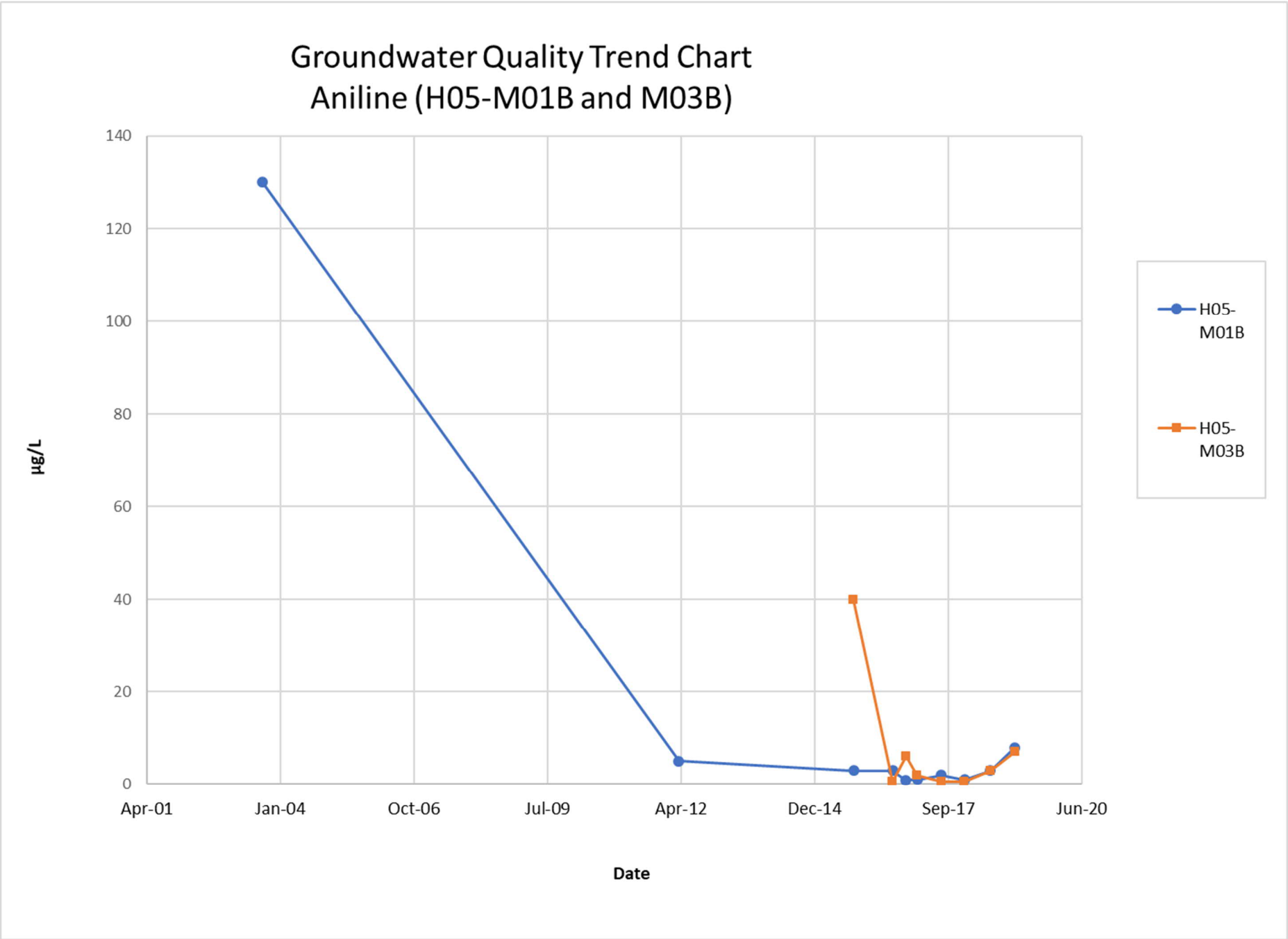

Groundwater Quality Trend Chart
Aniline (I05-M01B, I05-M02B and I05-M03B)
35
30
25
20
15
10
5
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

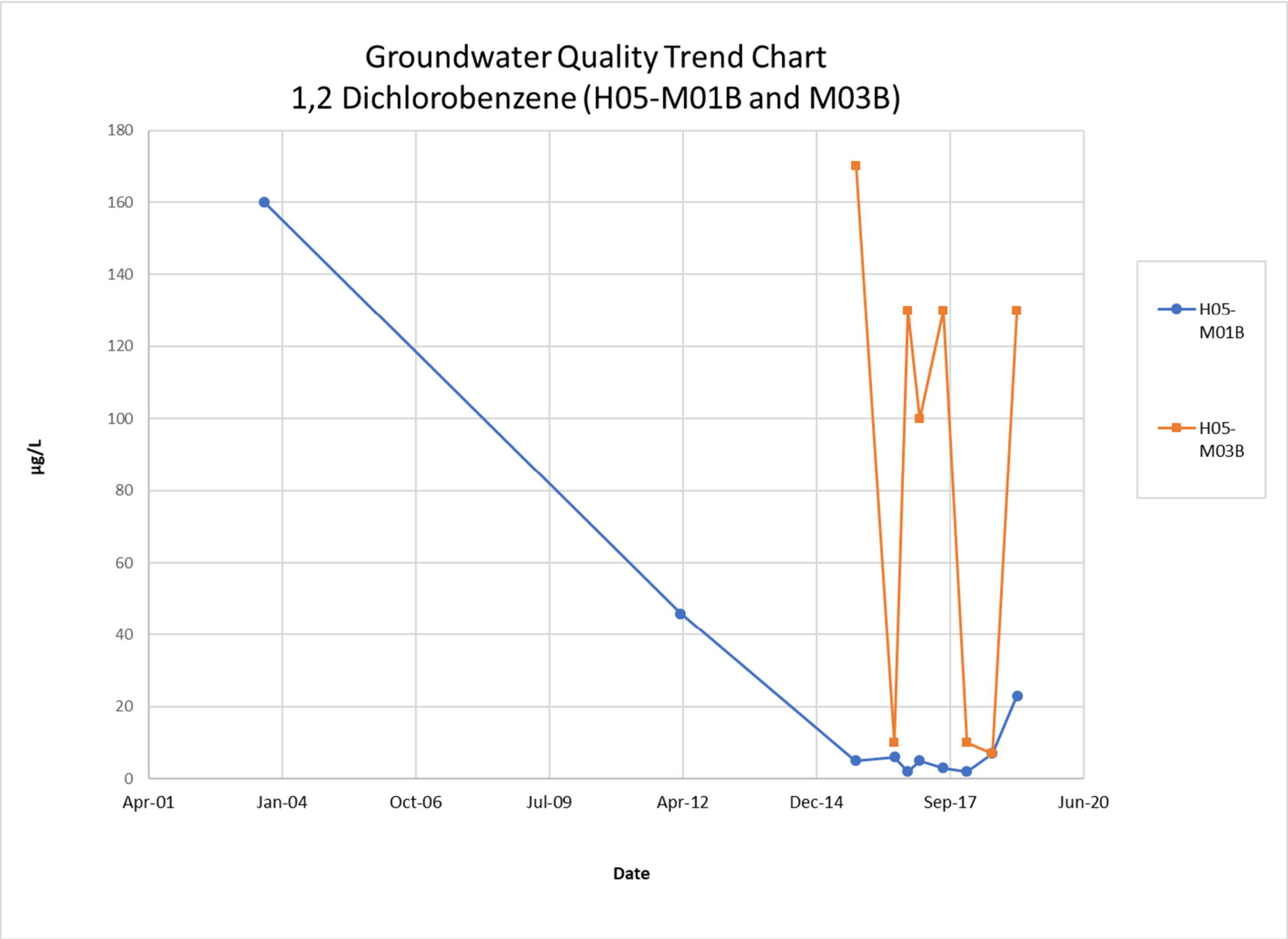

Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (I05-M01B, I05-M02B and I05-M03B)
30
25
20
15
10
5
0
µg/L
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

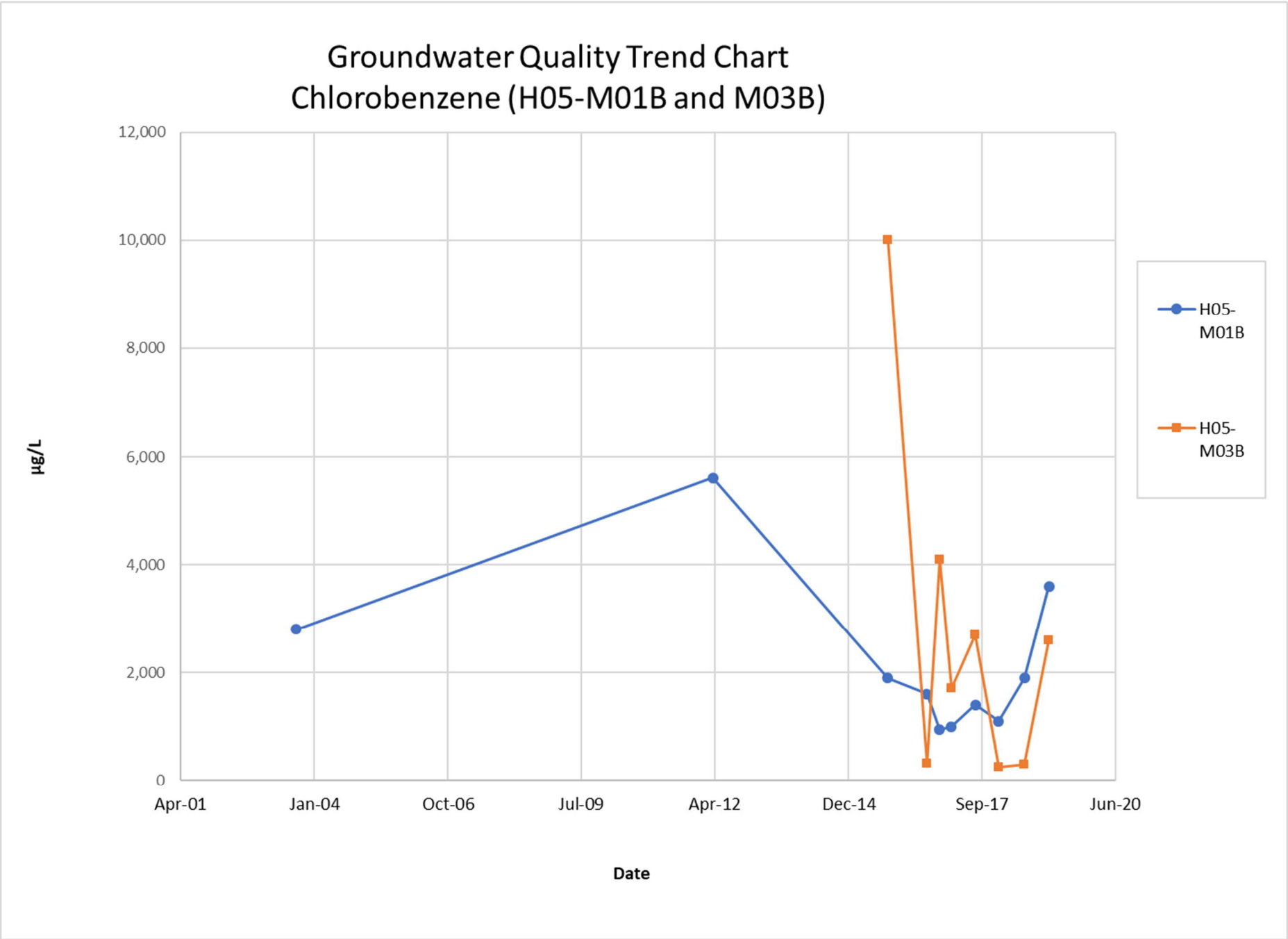

Groundwater Quality Trend Chart
Orthotoluidine (I05-M01B, I05-M02B and I05-M03B)
µg/L
6
5
4
3
2
1
0
May-90
Oct-95
Apr-01
Oct-06
Apr-12
Sep-17
Mar-23
Date
I05-M02B
I05-M01B
I05-M03B

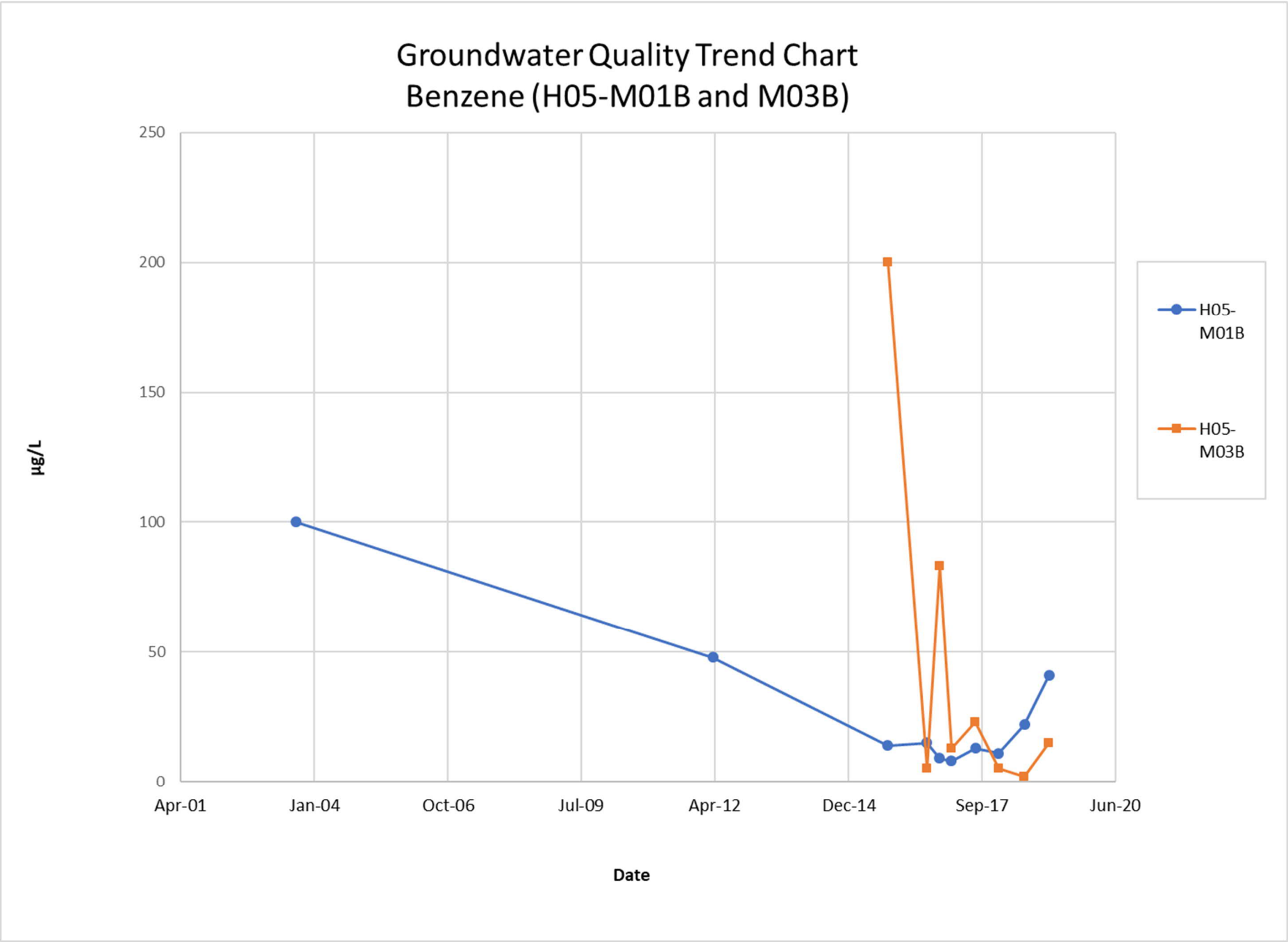

Groundwater Quality Trend Chart
Orthotoluidine (H05-M01B and M03B)
450
400
350
300
250
200
150
100
50
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B


Groundwater Quality Trend Chart
N-Nitrosodiphenylamine (H05-M01B and M03B)
600
500
400
300
200
100
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B


Groundwater Quality Trend Chart
Aniline (H05-M01B and M03B)
140
120
100
80
60
40
20
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B

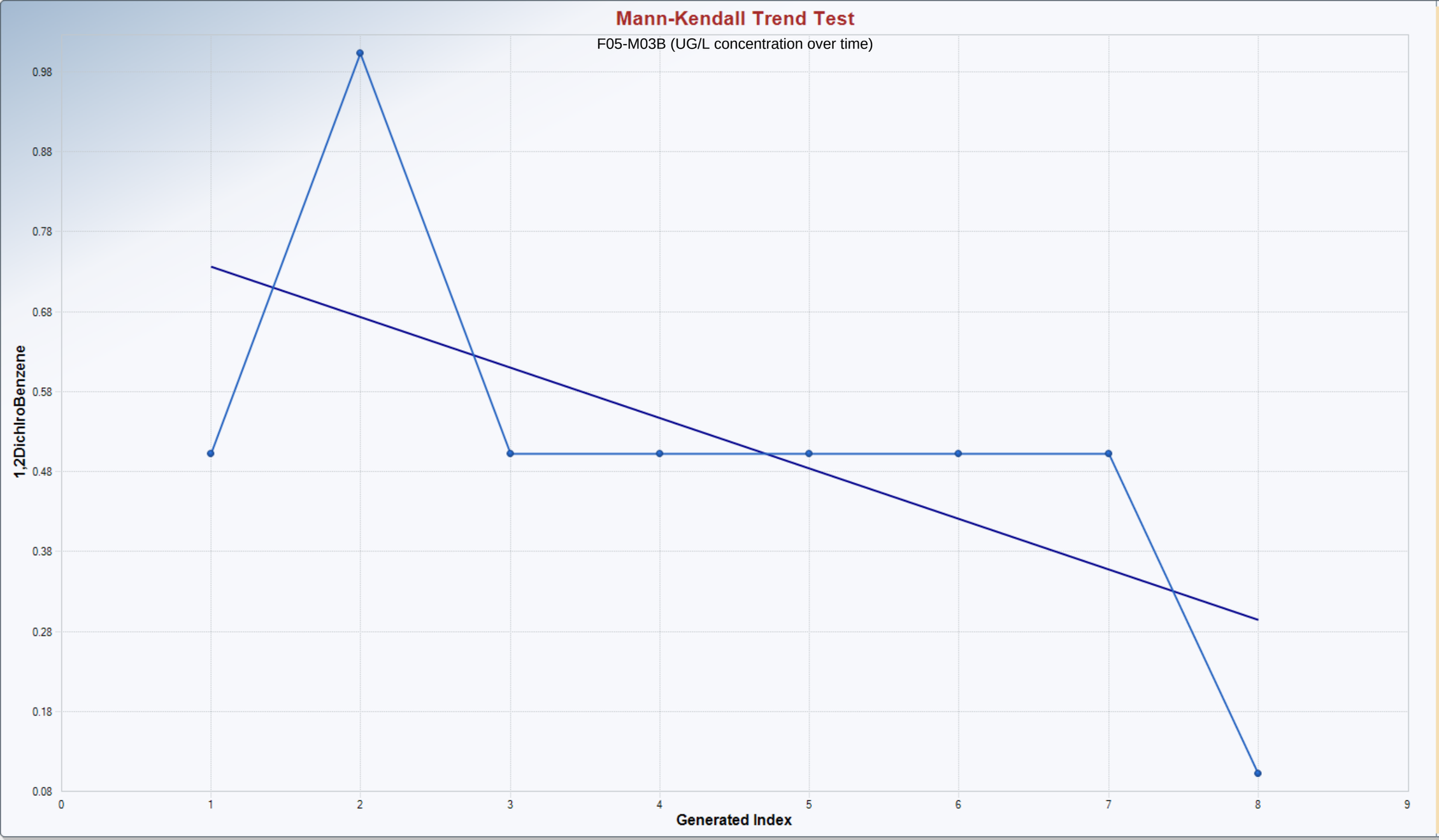

Groundwater Quality Trend Chart
1,2 Dichlorobenzene (H05-M01B and M03B)
180
160
140
120
100
80
60
40
20
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B


Groundwater Quality Trend Chart
Chlorobenzene (H05-M01B and M03B)
12,000
10,000
8,000
6,000
4,000
2,000
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B


Groundwater Quality Trend Chart
Benzene (H05-M01B and M03B)
250
200
150
100
50
0
µg/L
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Date
H05-M01B
H05-M03B

Appendix F

Statistical Output



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.0828
Standardized Value of S	-1.6440
M-K Test Value (S)	-11
Tabulated p-value	0.1380
Approximate p-value	0.0501

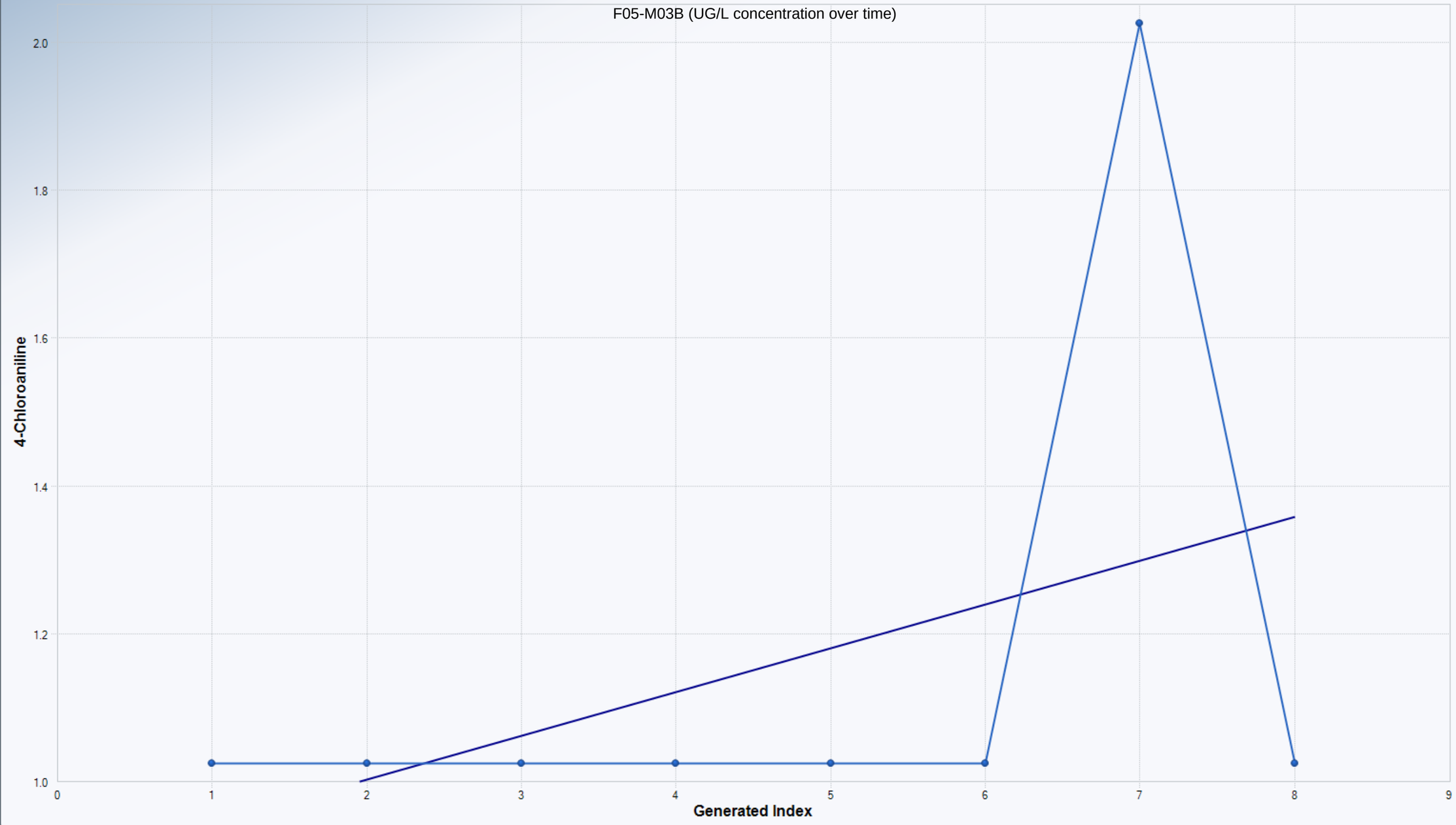
OLS Regression Line (Blue)

OLS Regression Slope	-0.0631
OLS Regression Intercept	0.7964

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M03B (UG/L concentration over time)



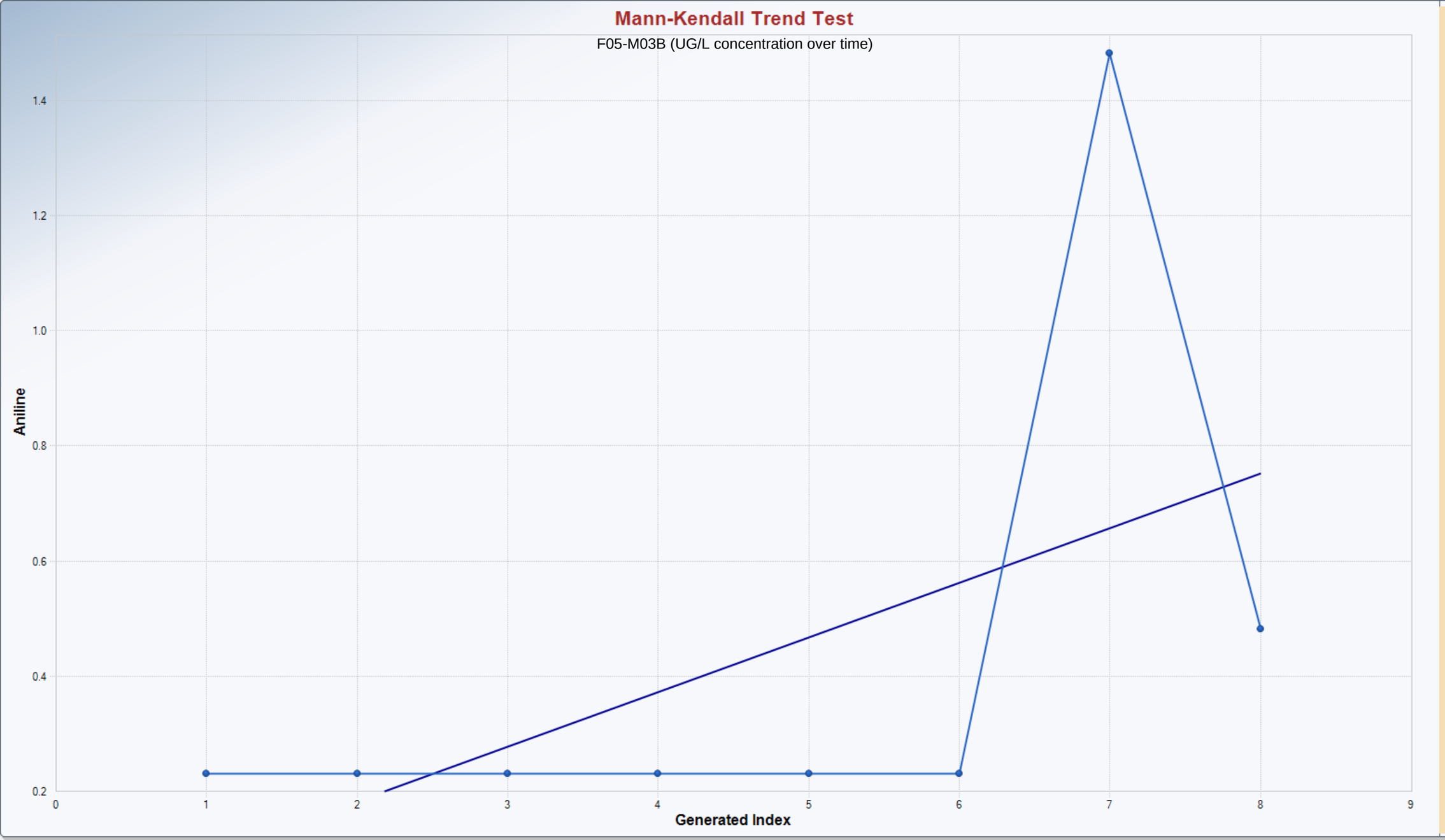
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.5826
Standardized Value of S	0.8729
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.1914

OLS Regression Line (Blue)

OLS Regression Slope	0.0595
OLS Regression Intercept	0.8571

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.0828
Standardized Value of S	1.6440
M-K Test Value (S)	11
Tabulated p-value	0.1380
Approximate p-value	0.0501

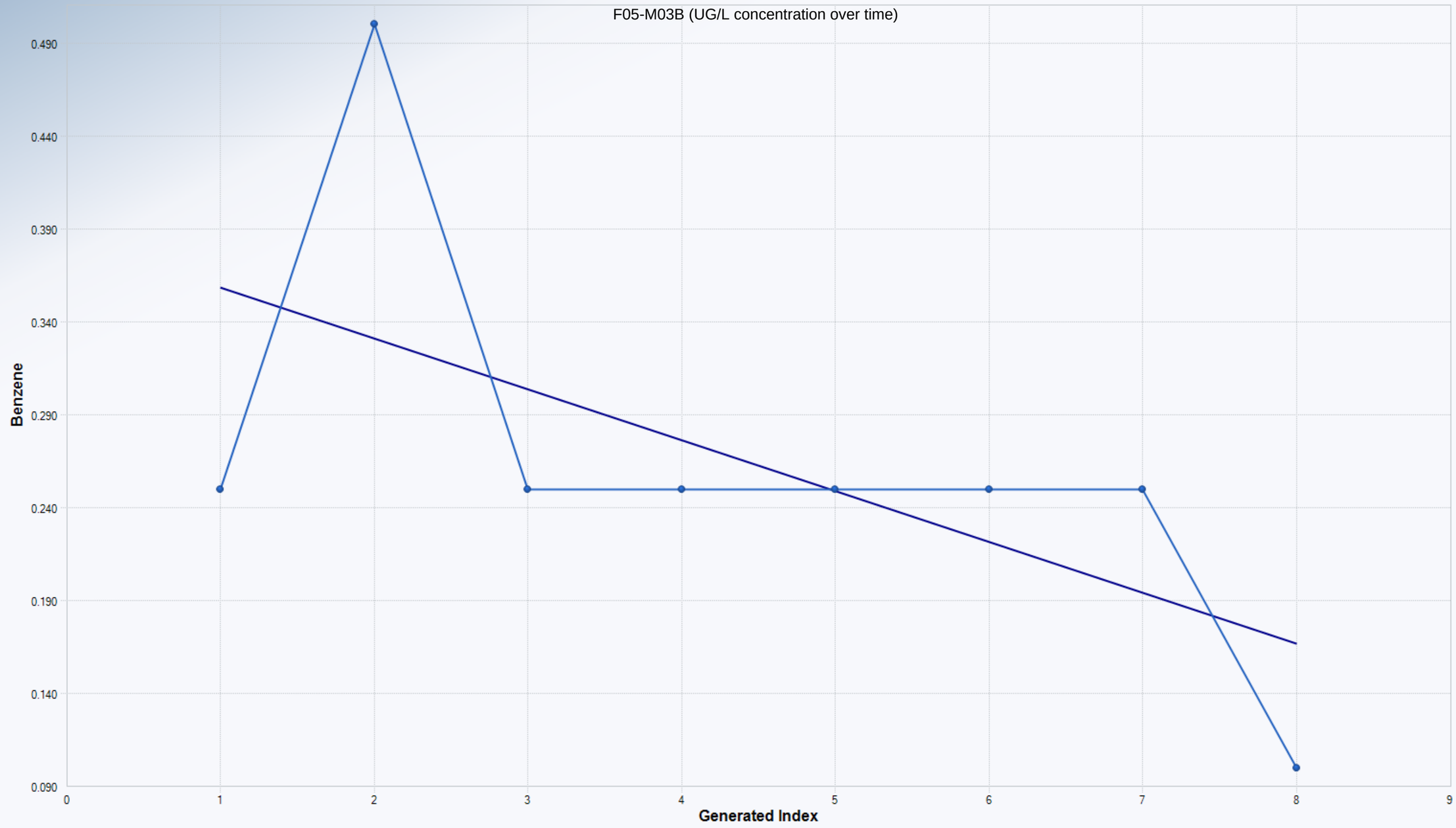
OLS Regression Line (Blue)

OLS Regression Slope	0.0952
OLS Regression Intercept	0.0089

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M03B (UG/L concentration over time)



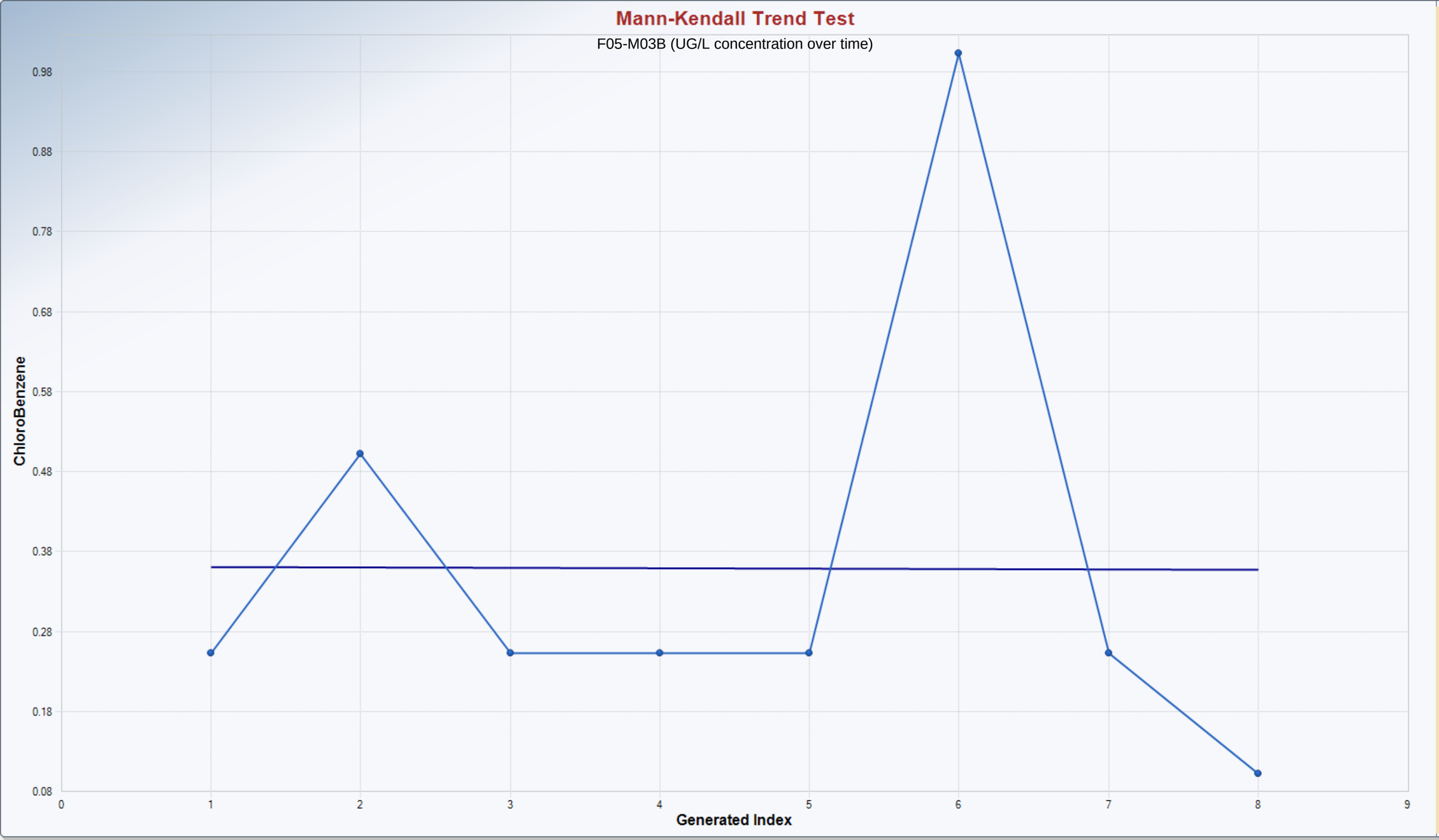
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.0828
Standardized Value of S	-1.6440
M-K Test Value (S)	-11
Tabulated p-value	0.1380
Approximate p-value	0.0501

OLS Regression Line (Blue)

OLS Regression Slope	-0.0274
OLS Regression Intercept	0.3857

Insufficient statistical evidence of a significant trend at the specified level of significance.



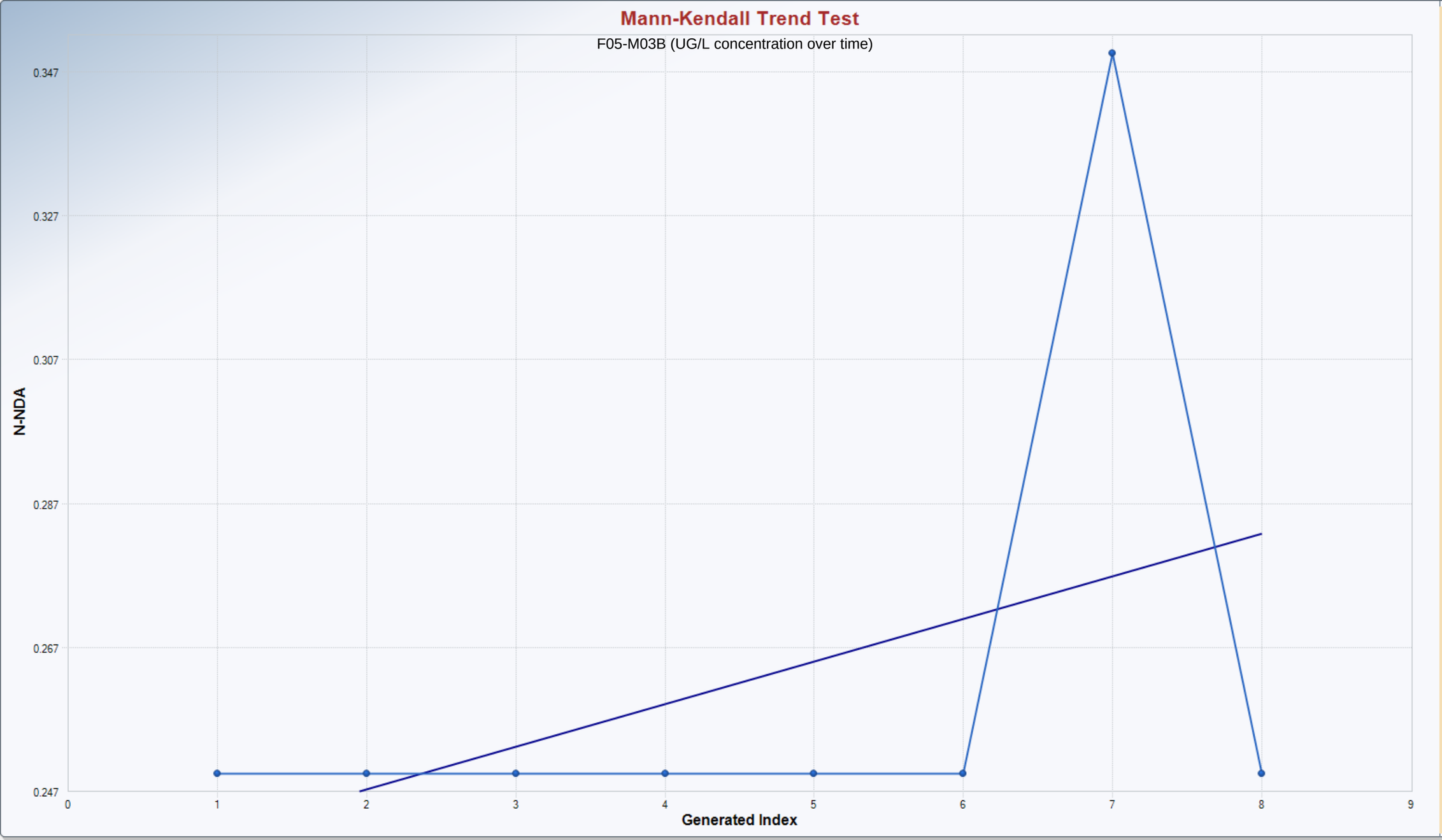
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9761
Standardized Value of S	-0.7167
M-K Test Value (S)	-6
Tabulated p-value	0.2740
Approximate p-value	0.2368

OLS Regression Line (Blue)

OLS Regression Slope	-0.0006
OLS Regression Intercept	0.3589

Insufficient statistical evidence of a significant trend at the specified level of significance.



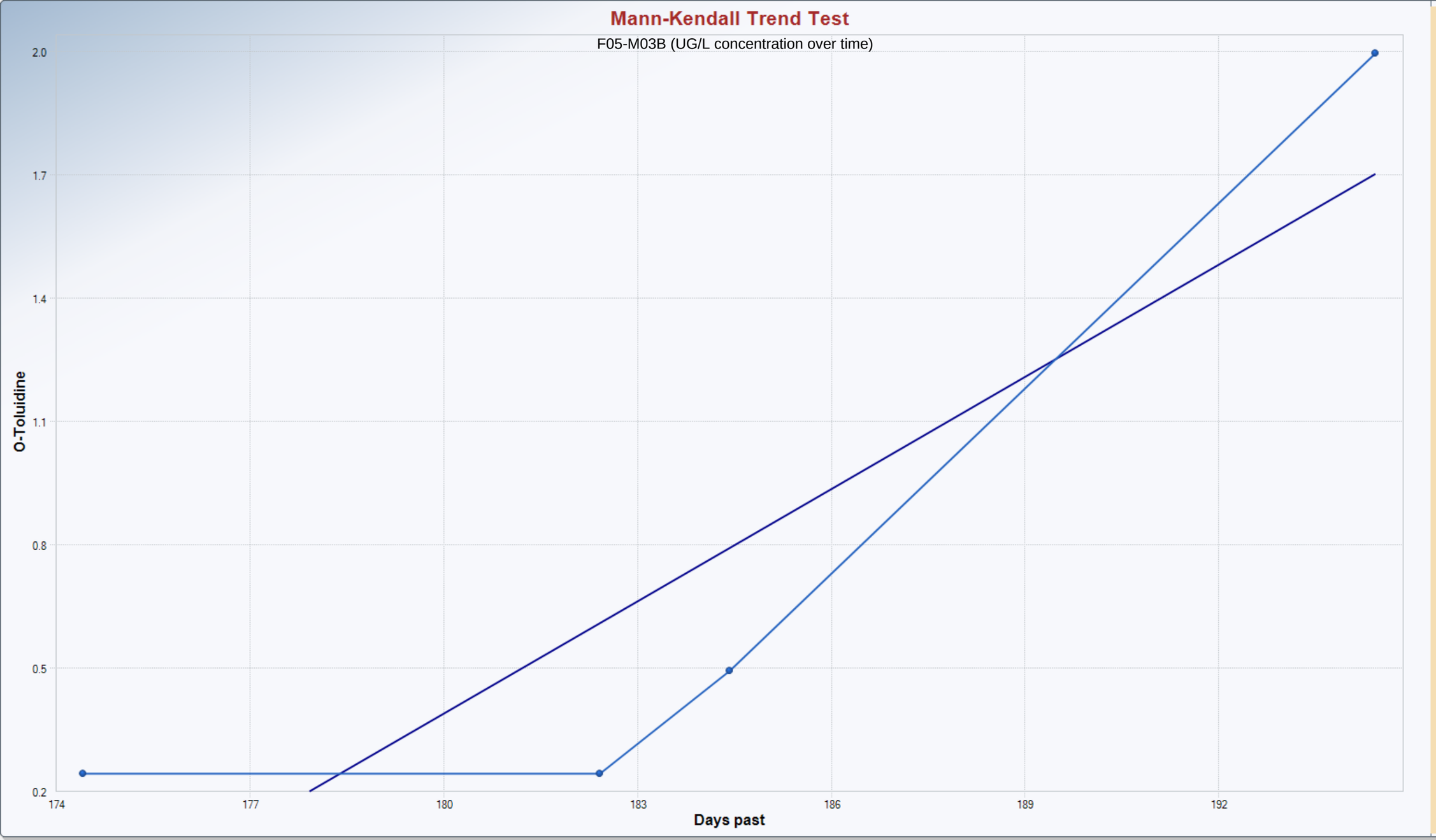
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.5826
Standardized Value of S	0.8729
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.1914

OLS Regression Line (Blue)

OLS Regression Slope	0.0060
OLS Regression Intercept	0.2357

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.7689
Standardized Value of S	1.4446
M-K Test Value (S)	5
Tabulated p-value	0.1670
Approximate p-value	0.0743

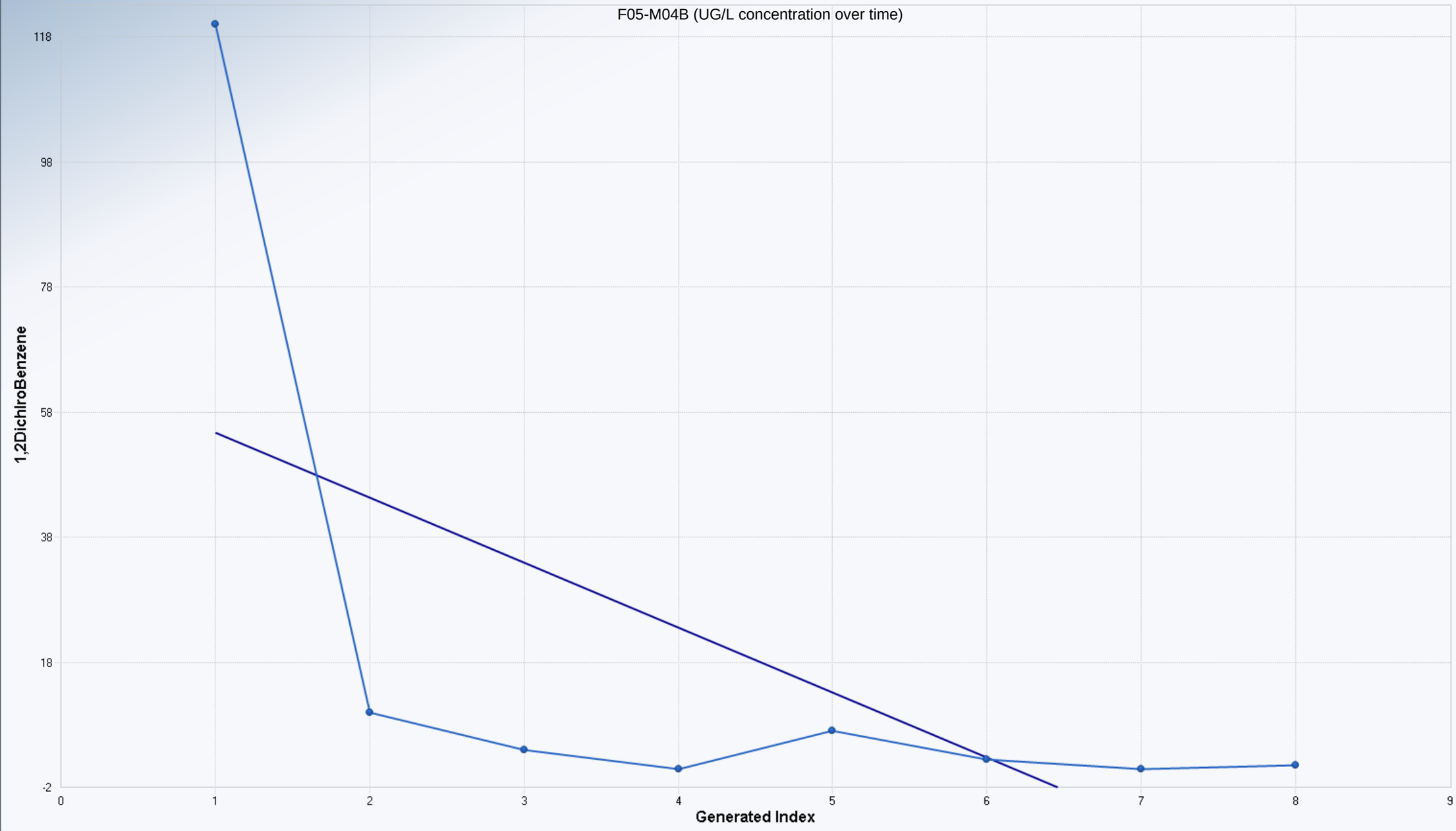
OLS Regression Line (Blue)

OLS Regression Slope	0.0911
OLS Regression Intercept	-15.9729

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M04B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-1.9948
M-K Test Value (S)	-17
Tabulated p-value	0.0310
Approximate p-value	0.0230

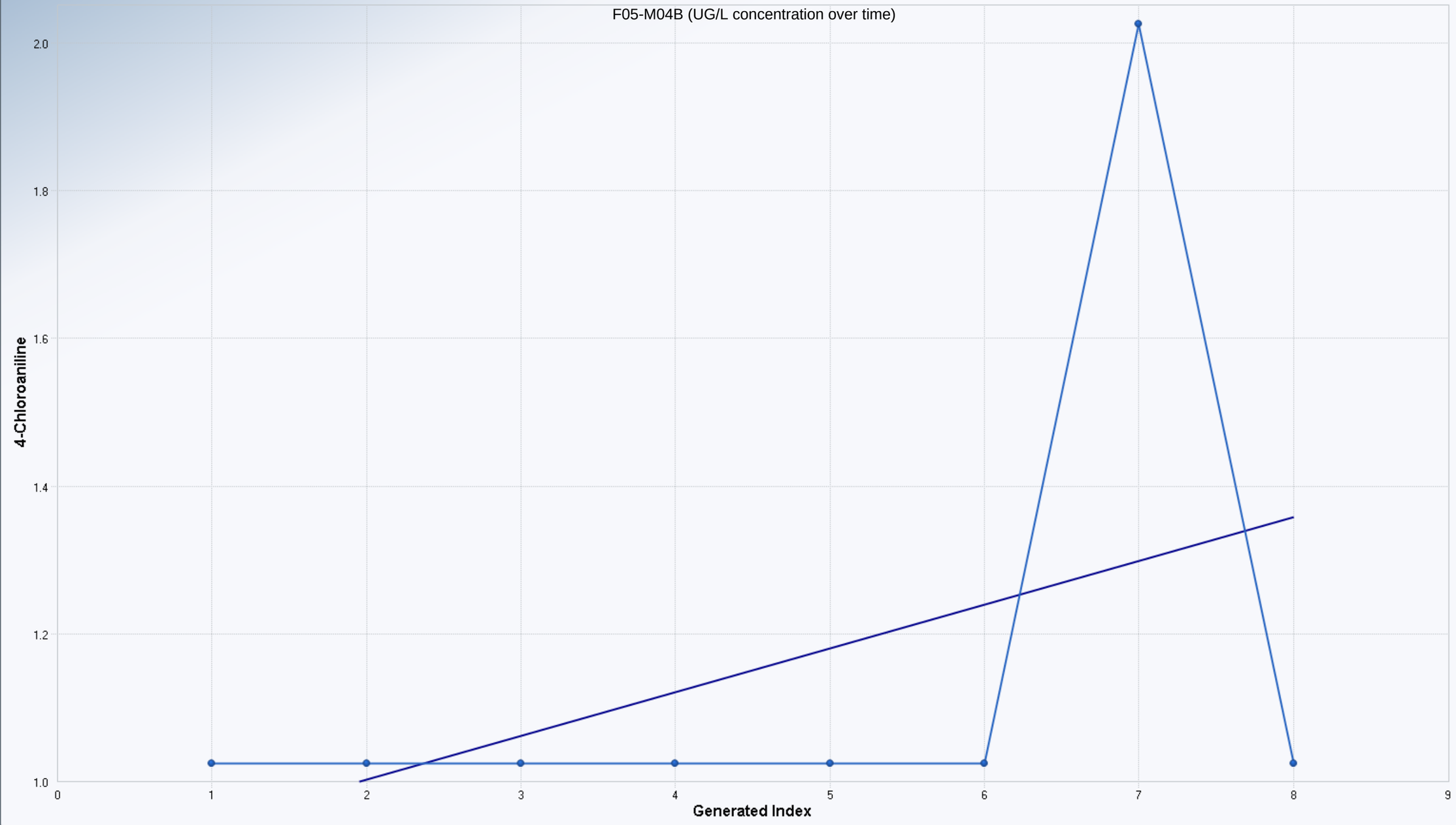
OLS Regression Line (Blue)

OLS Regression Slope	-10.3929
OLS Regression Intercept	65.1429

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M04B (UG/L concentration over time)



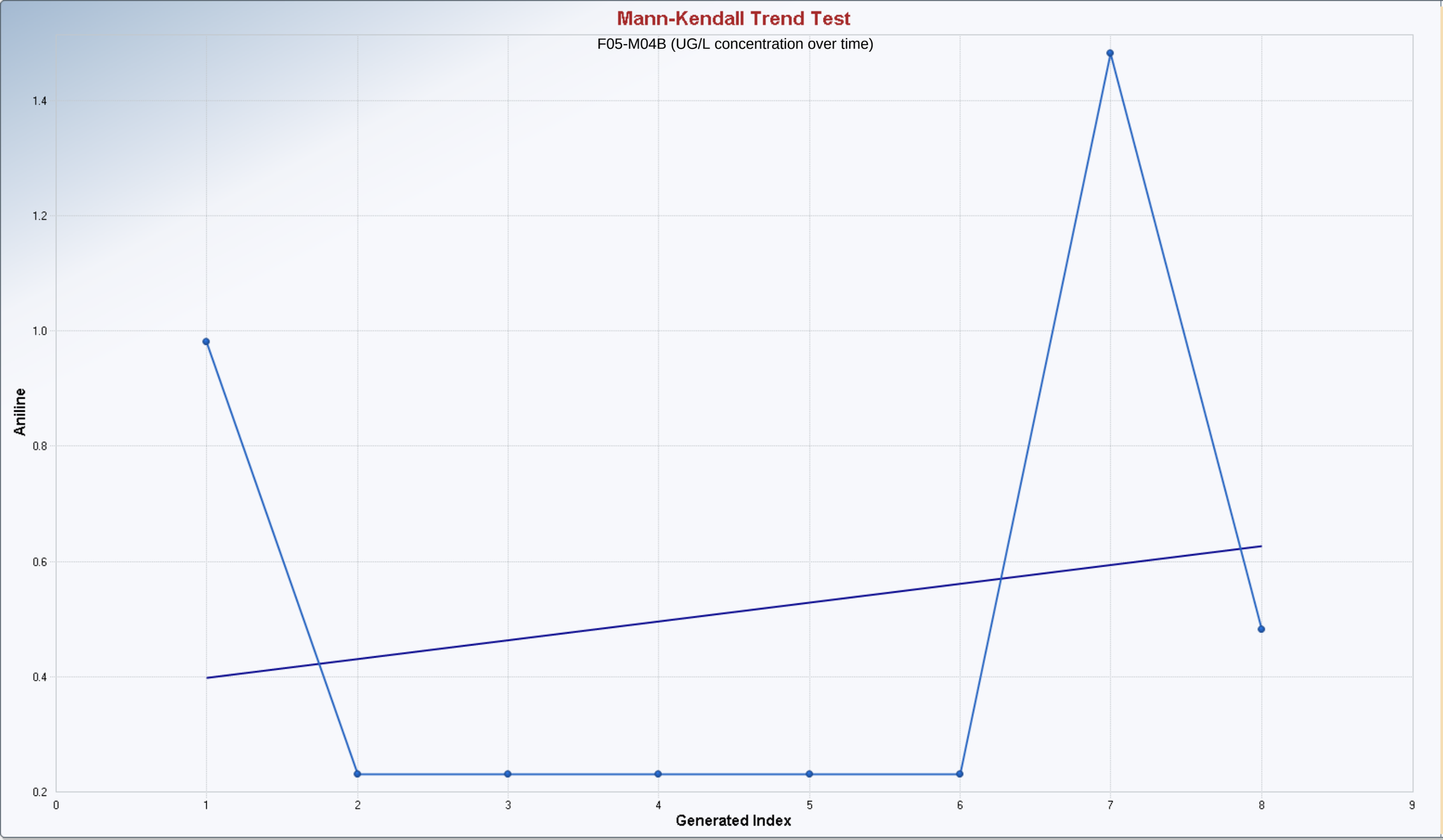
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.5826
Standardized Value of S	0.8729
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.1914

OLS Regression Line (Blue)

OLS Regression Slope	0.0595
OLS Regression Intercept	0.8571

Insufficient statistical evidence of a significant trend at the specified level of significance.



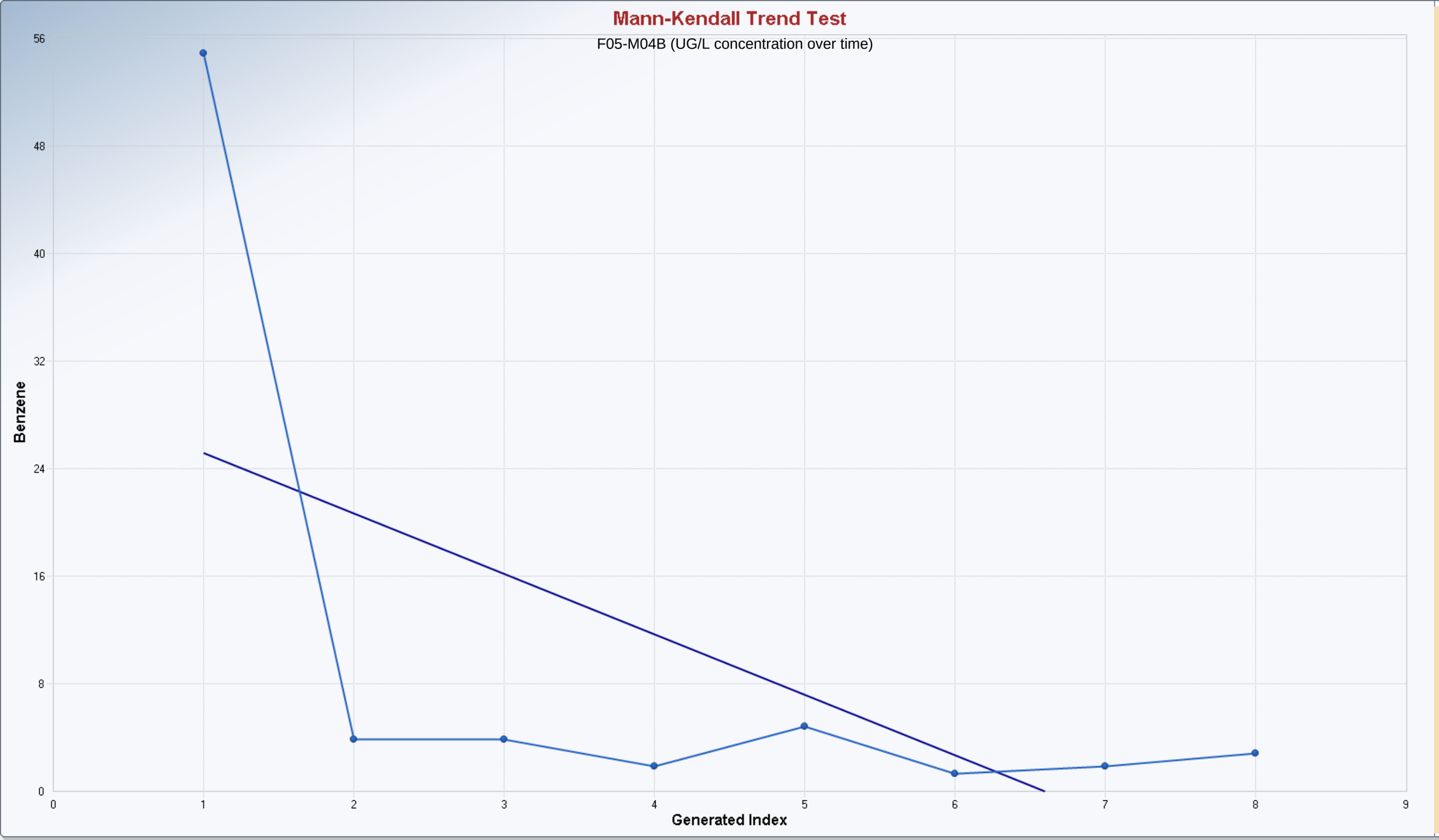
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9761
Standardized Value of S	0.4300
M-K Test Value (S)	4
Tabulated p-value	0.3600
Approximate p-value	0.3336

OLS Regression Line (Blue)

OLS Regression Slope	0.0327
OLS Regression Intercept	0.3839

Insufficient statistical evidence of a significant trend at the specified level of significance.



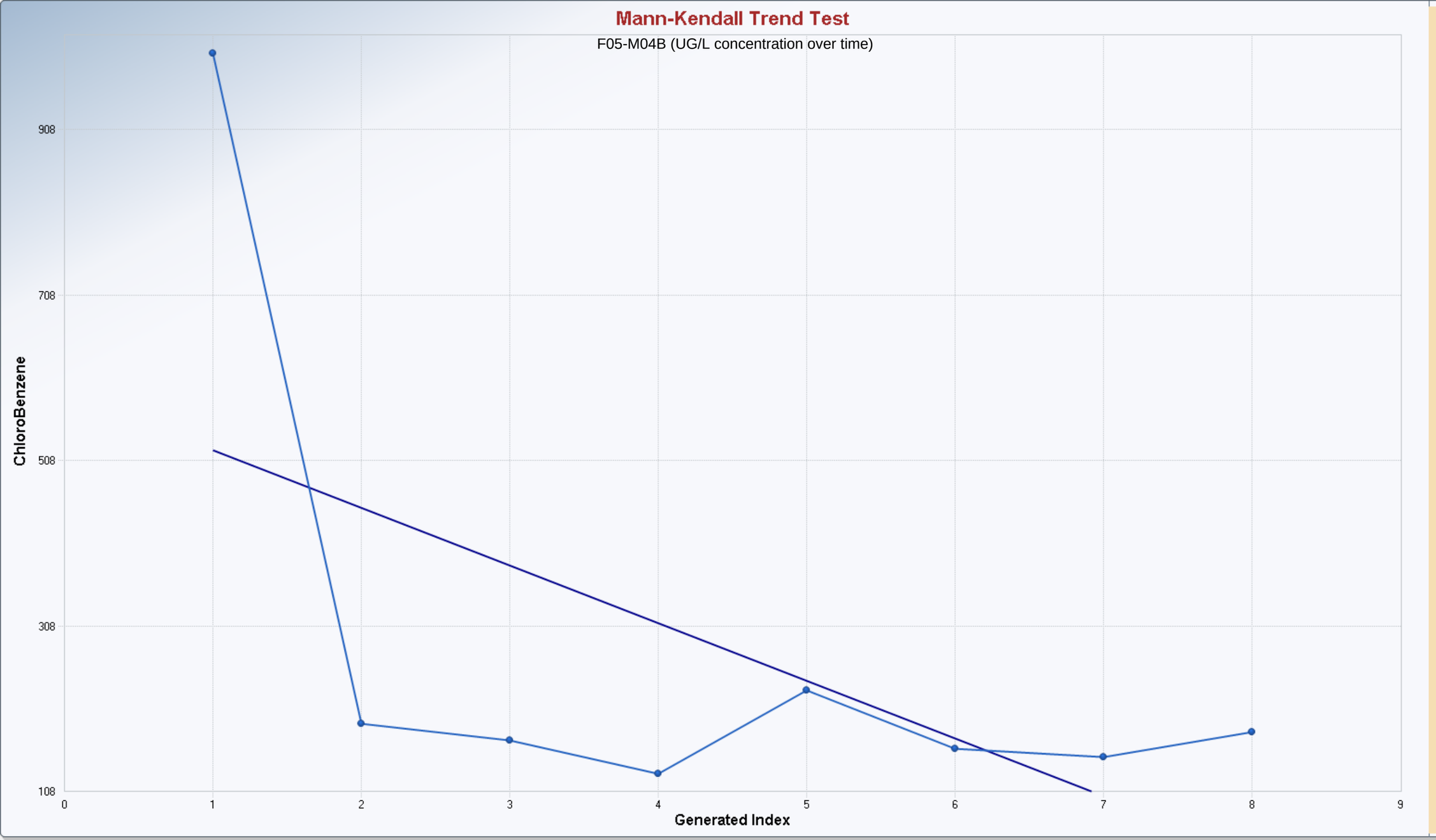
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.9582
Standardized Value of S	-1.3822
M-K Test Value (S)	-12
Tabulated p-value	0.0890
Approximate p-value	0.0835

OLS Regression Line (Blue)

OLS Regression Slope	-4.5060
OLS Regression Intercept	29.8393

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-1.1135
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1328

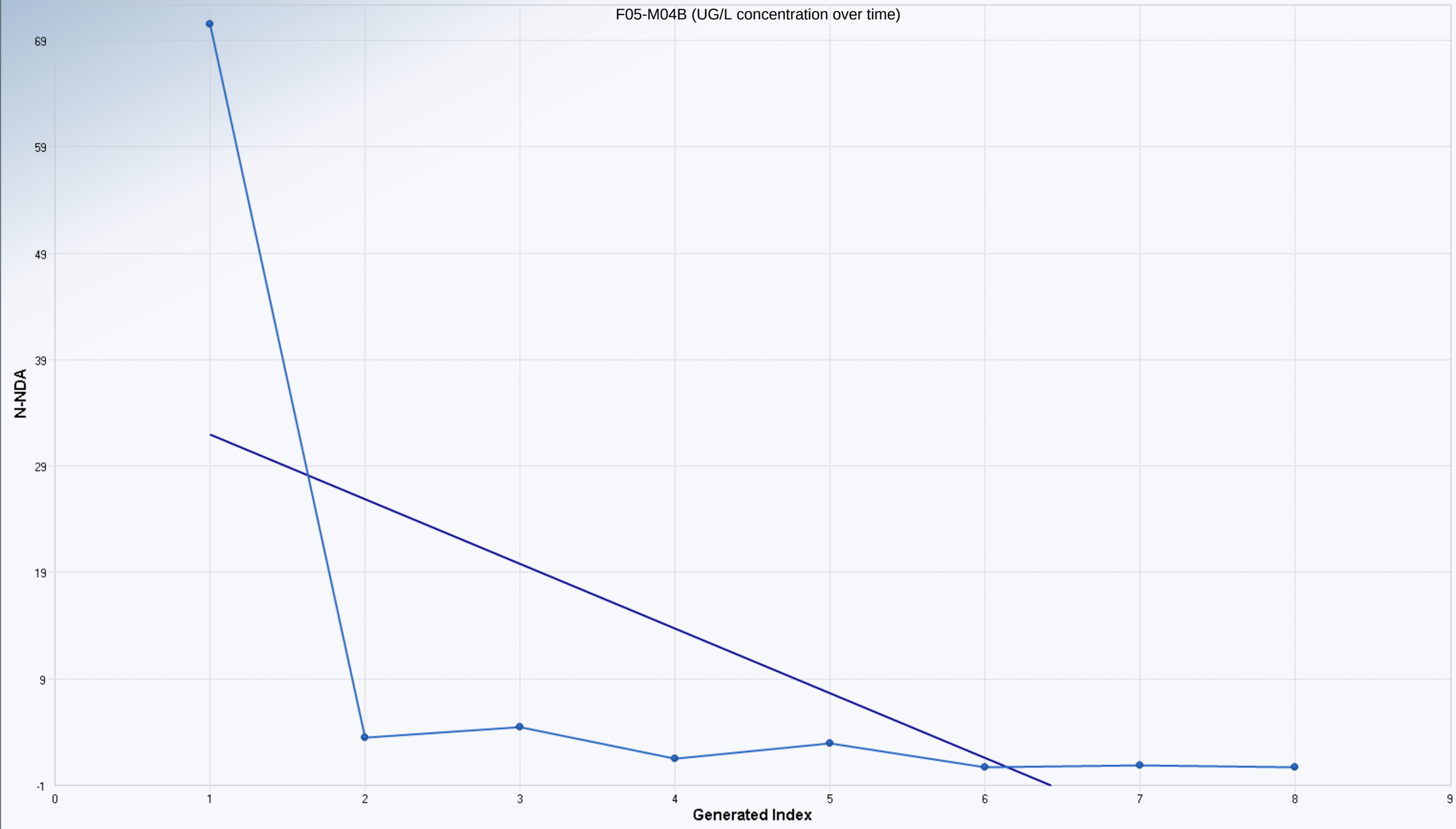
OLS Regression Line (Blue)

OLS Regression Slope	-69.8810
OLS Regression Intercept	590.7143

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M04B (UG/L concentration over time)



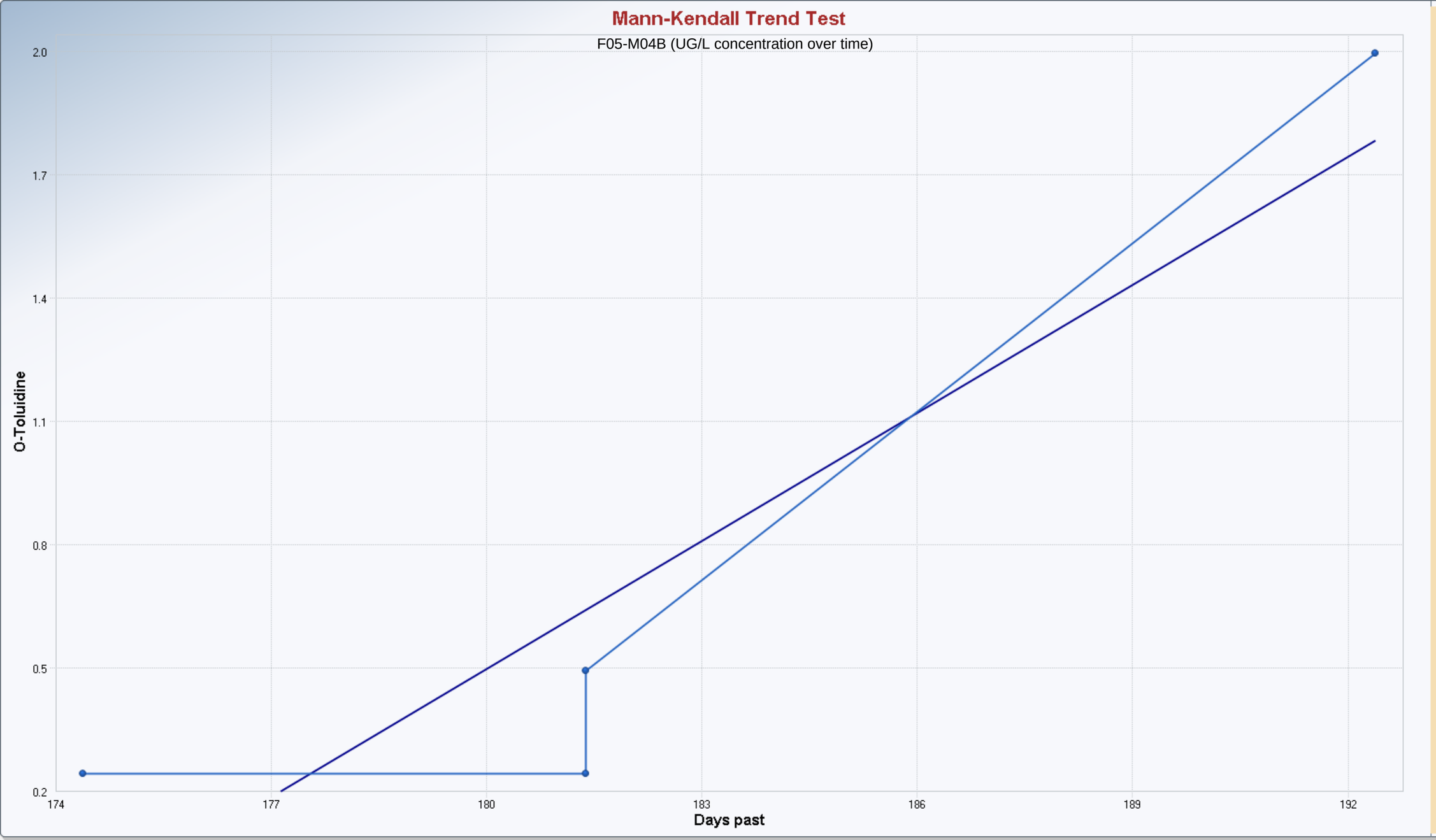
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-2.4935
M-K Test Value (S)	-21
Tabulated p-value	0.0070
Approximate p-value	0.0063

OLS Regression Line (Blue)

OLS Regression Slope	-6.0863
OLS Regression Intercept	37.5571

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.7689
Standardized Value of S	1.4446
M-K Test Value (S)	5
Tabulated p-value	0.1670
Approximate p-value	0.0743

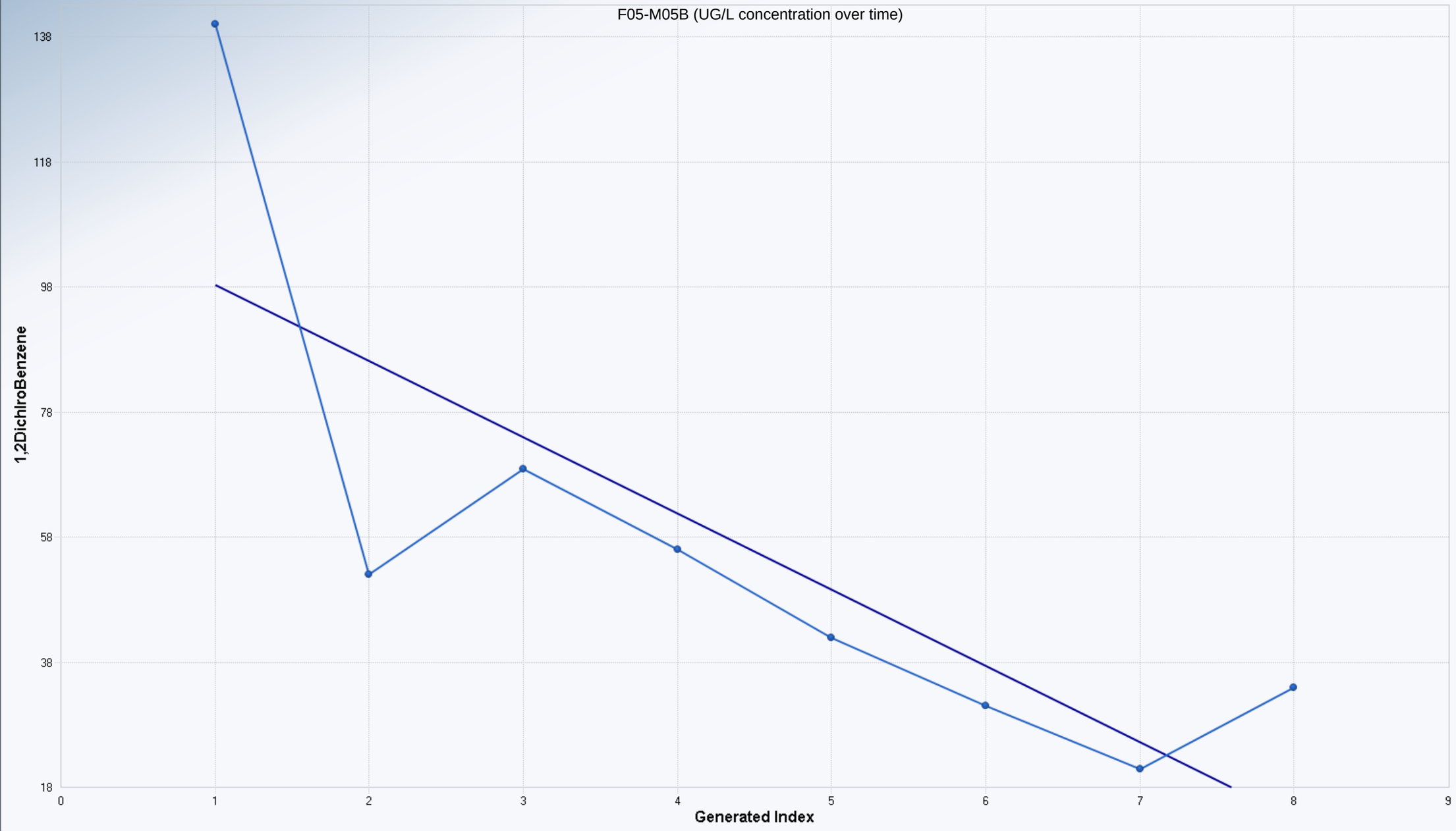
OLS Regression Line (Blue)

OLS Regression Slope	0.1039
OLS Regression Intercept	-18.1627

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



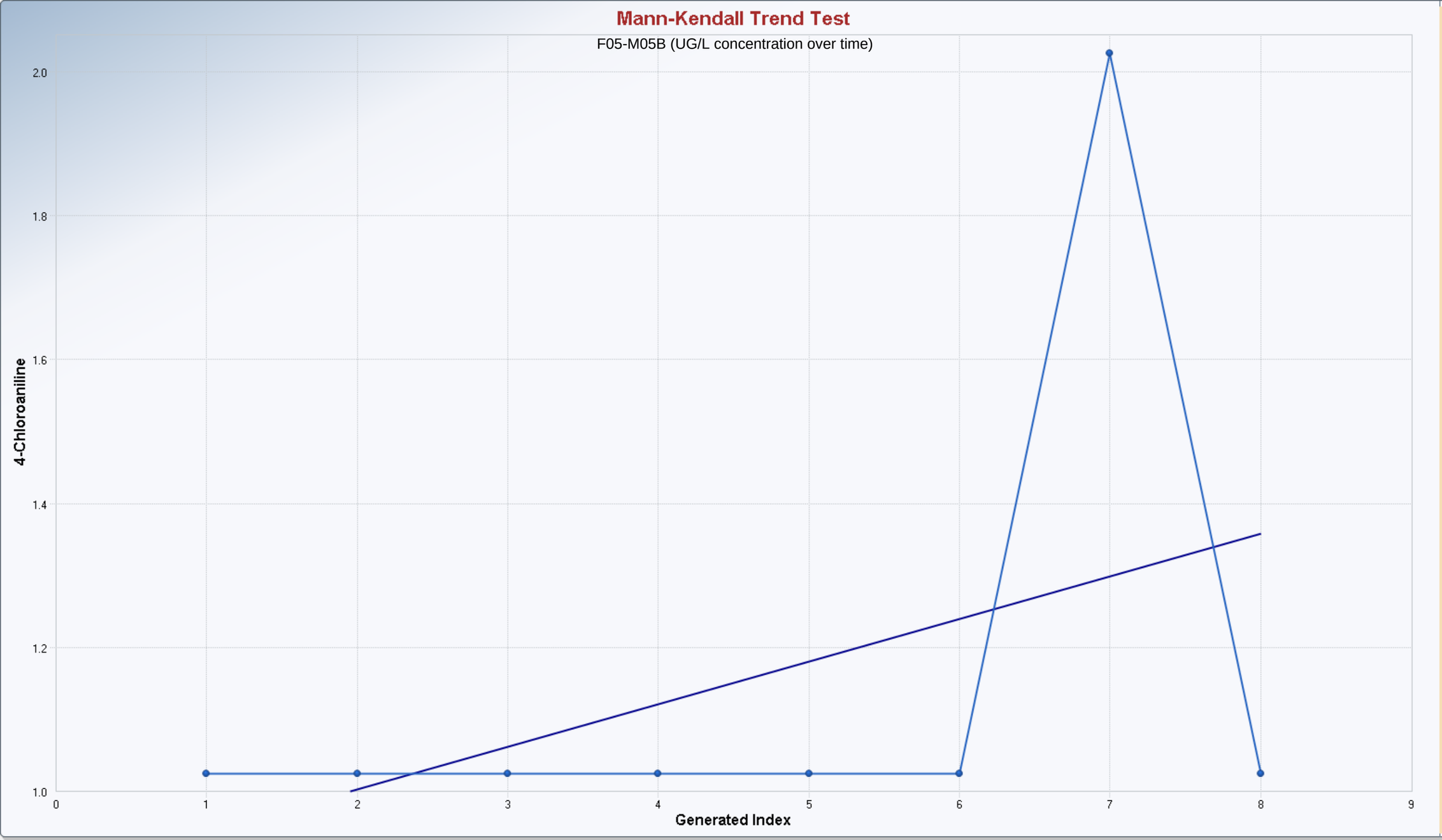
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-2.3506
M-K Test Value (S)	-20
Tabulated p-value	0.0070
Approximate p-value	0.0094

OLS Regression Line (Blue)

OLS Regression Slope	-12.2024
OLS Regression Intercept	110.5357

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.5826
Standardized Value of S	0.8729
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.1914

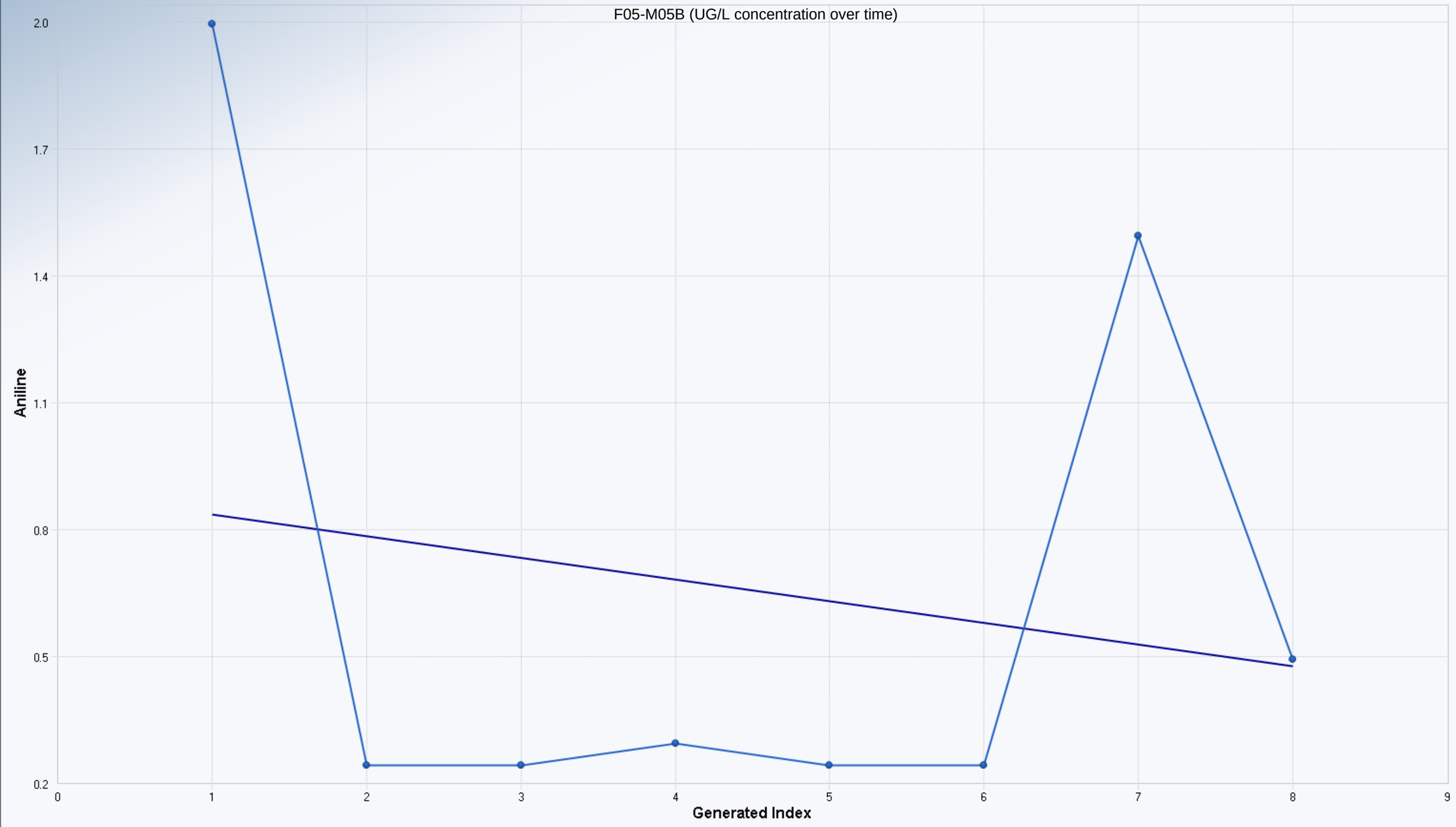
OLS Regression Line (Blue)

OLS Regression Slope	0.0595
OLS Regression Intercept	0.8571

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.5277
Standardized Value of S	0.1328
M-K Test Value (S)	2
Tabulated p-value	0.4520
Approximate p-value	0.4472

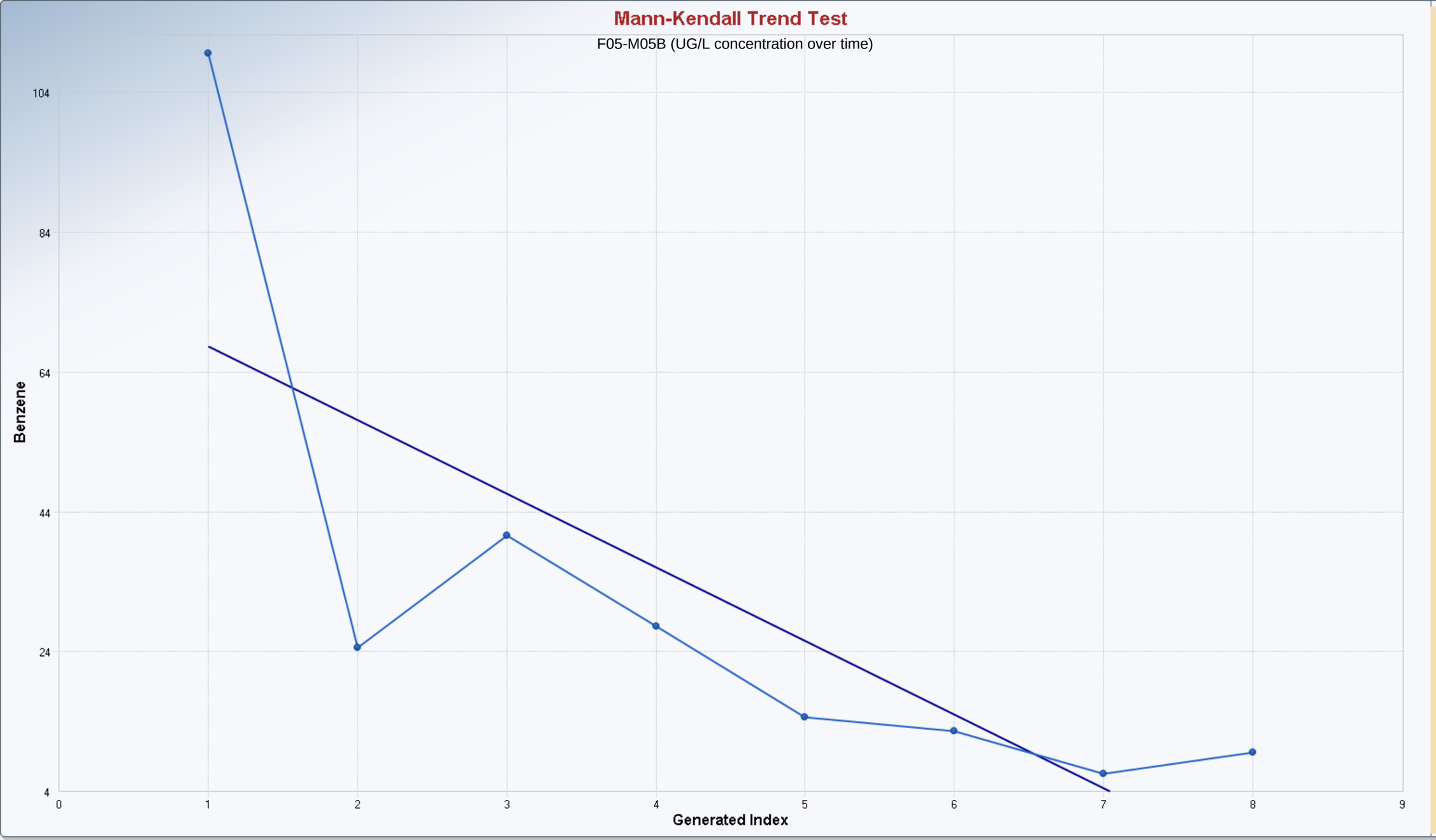
OLS Regression Line (Blue)

OLS Regression Slope	-0.0512
OLS Regression Intercept	0.8929

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-2.5981
M-K Test Value (S)	-22
Tabulated p-value	0.0020
Approximate p-value	0.0047

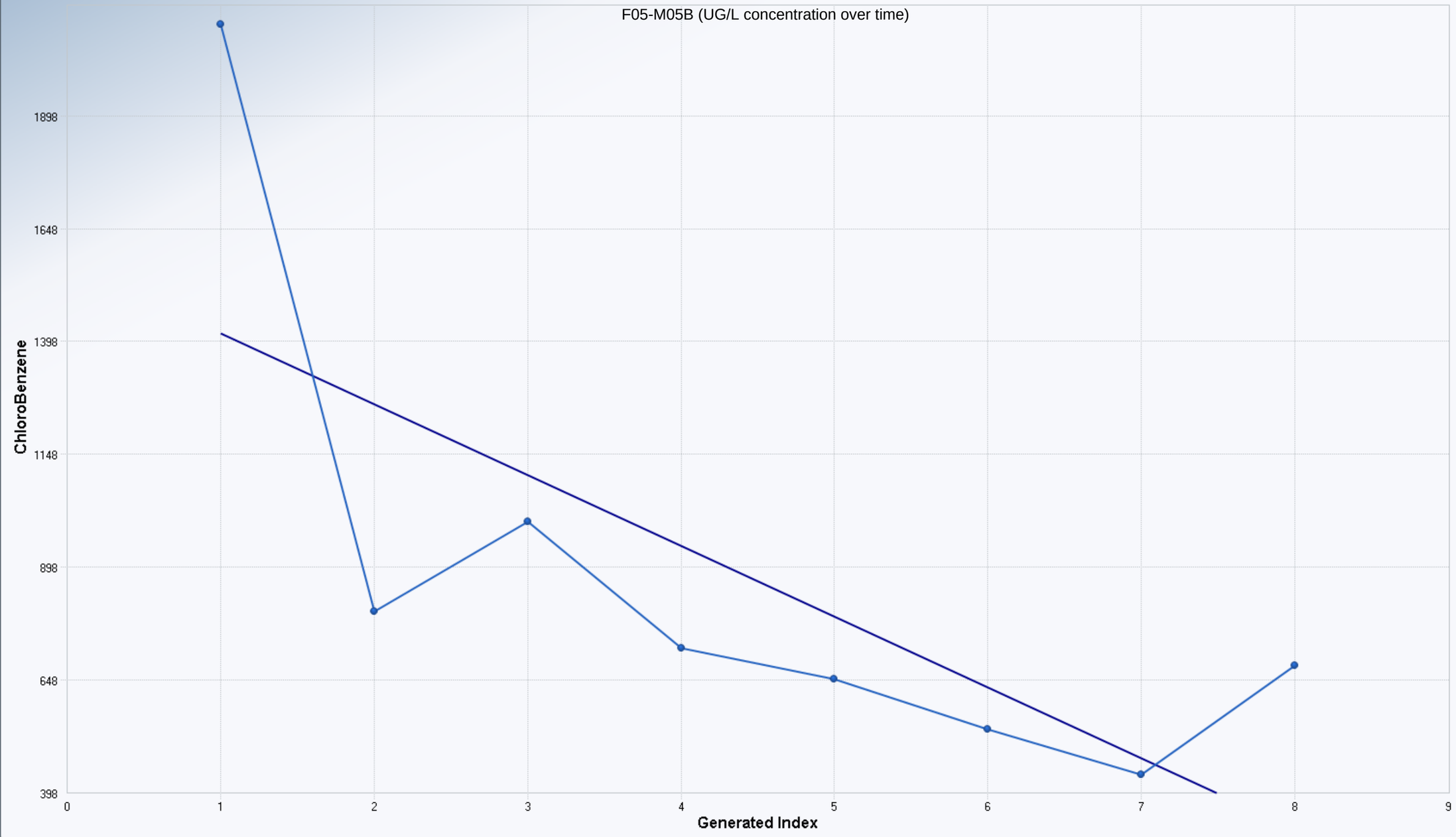
OLS Regression Line (Blue)

OLS Regression Slope	-10.5595
OLS Regression Intercept	78.6429

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-2.3506
M-K Test Value (S)	-20
Tabulated p-value	0.0070
Approximate p-value	0.0094

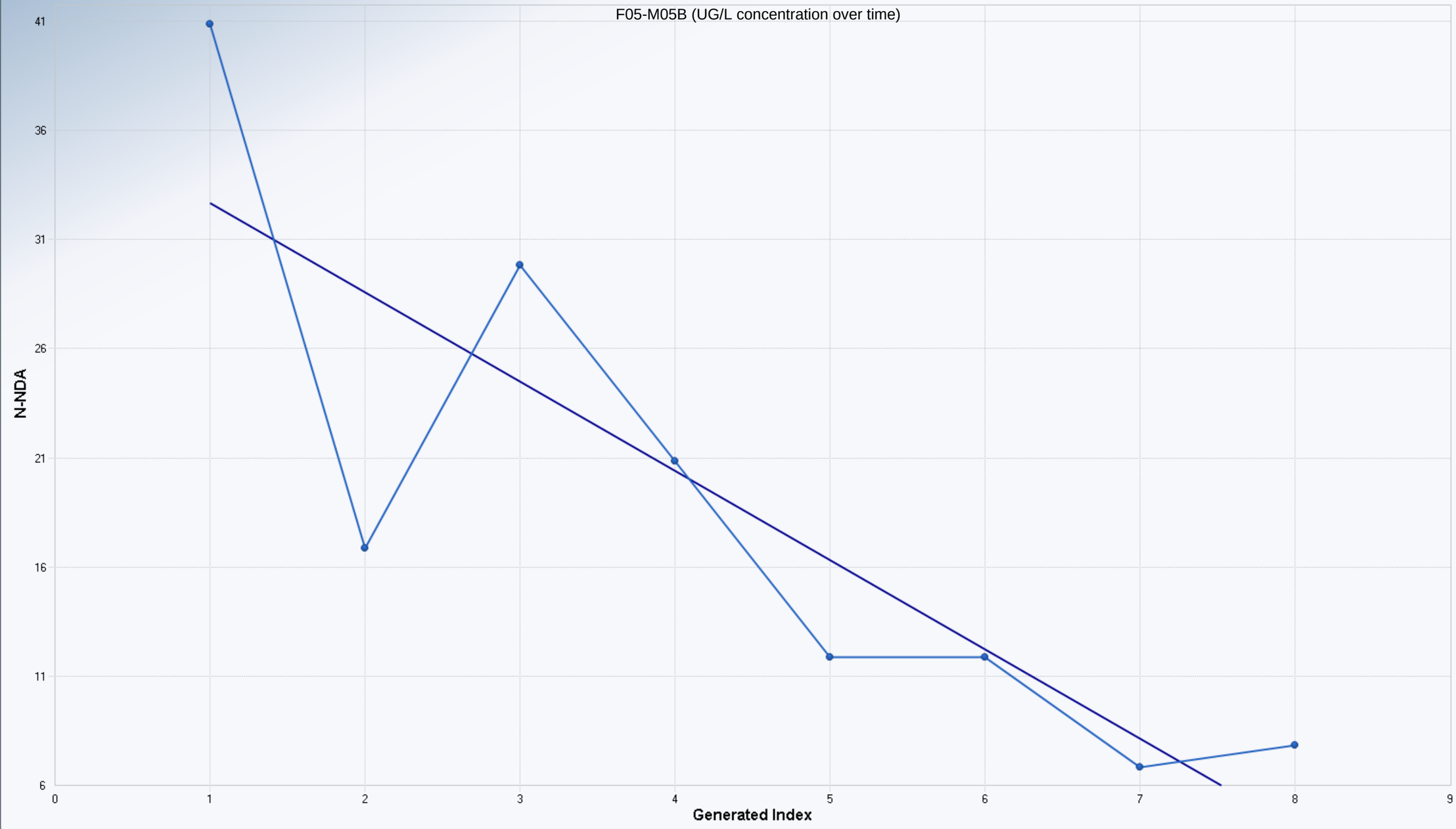
OLS Regression Line (Blue)

OLS Regression Slope	-157.0238
OLS Regression Intercept	1,572.8571

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-2.4935
M-K Test Value (S)	-21
Tabulated p-value	0.0070
Approximate p-value	0.0063

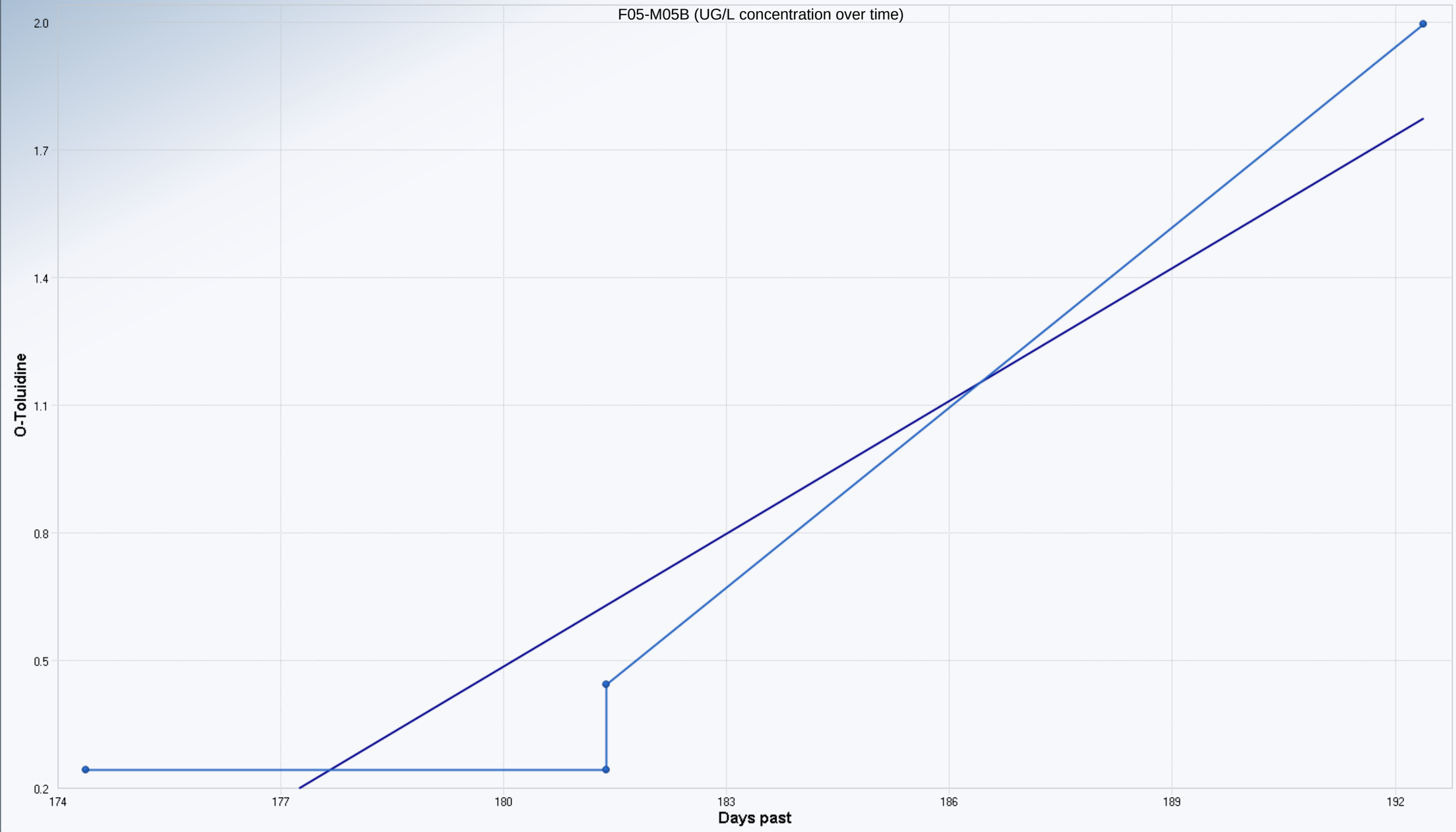
OLS Regression Line (Blue)

OLS Regression Slope	-4.0952
OLS Regression Intercept	36.9286

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test

F05-M05B (UG/L concentration over time)



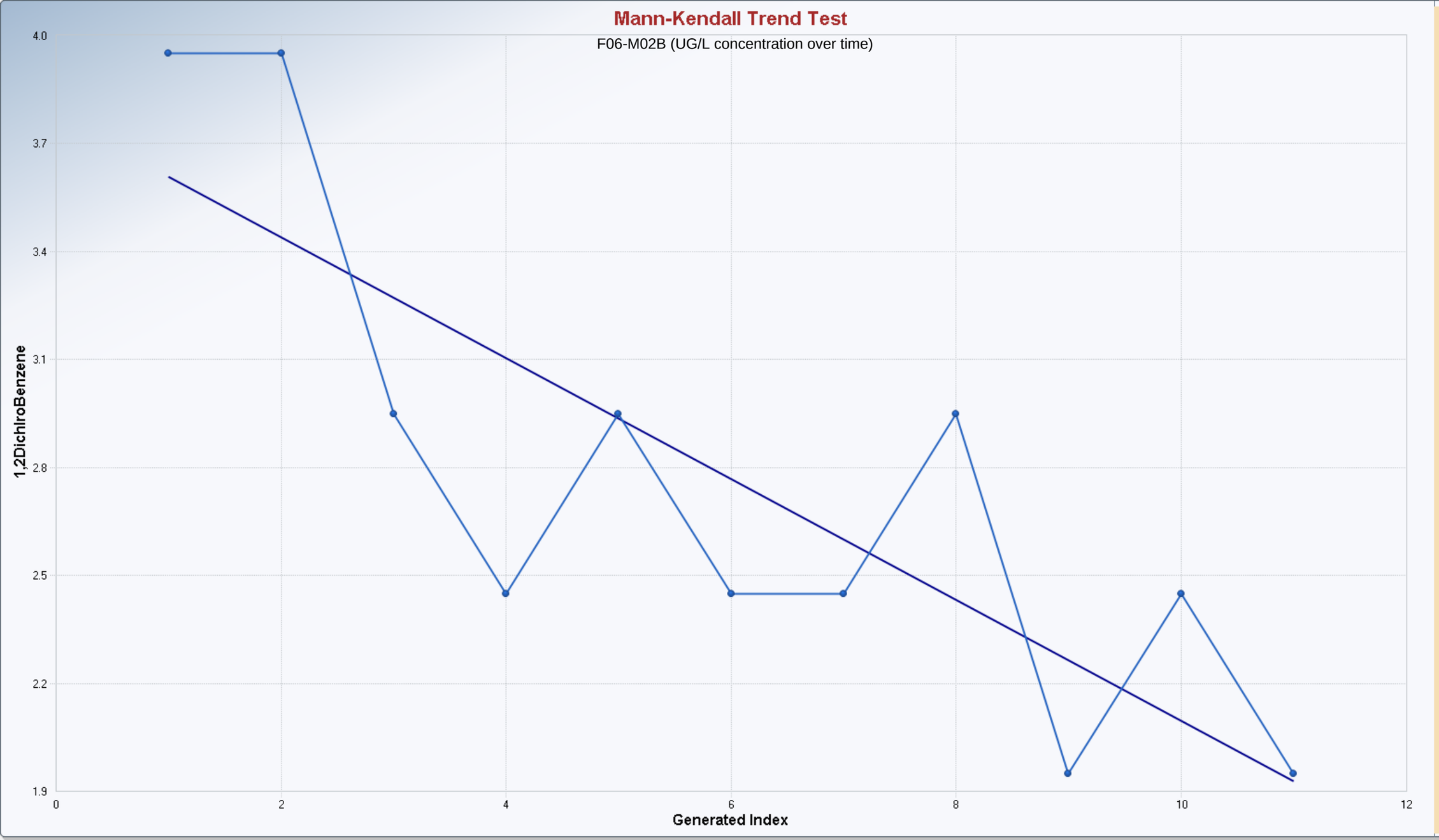
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.7689
Standardized Value of S	1.4446
M-K Test Value (S)	5
Tabulated p-value	0.1670
Approximate p-value	0.0743

OLS Regression Line (Blue)

OLS Regression Slope	0.1042
OLS Regression Intercept	-18.2300

Insufficient statistical evidence of a significant trend at the specified level of significance.



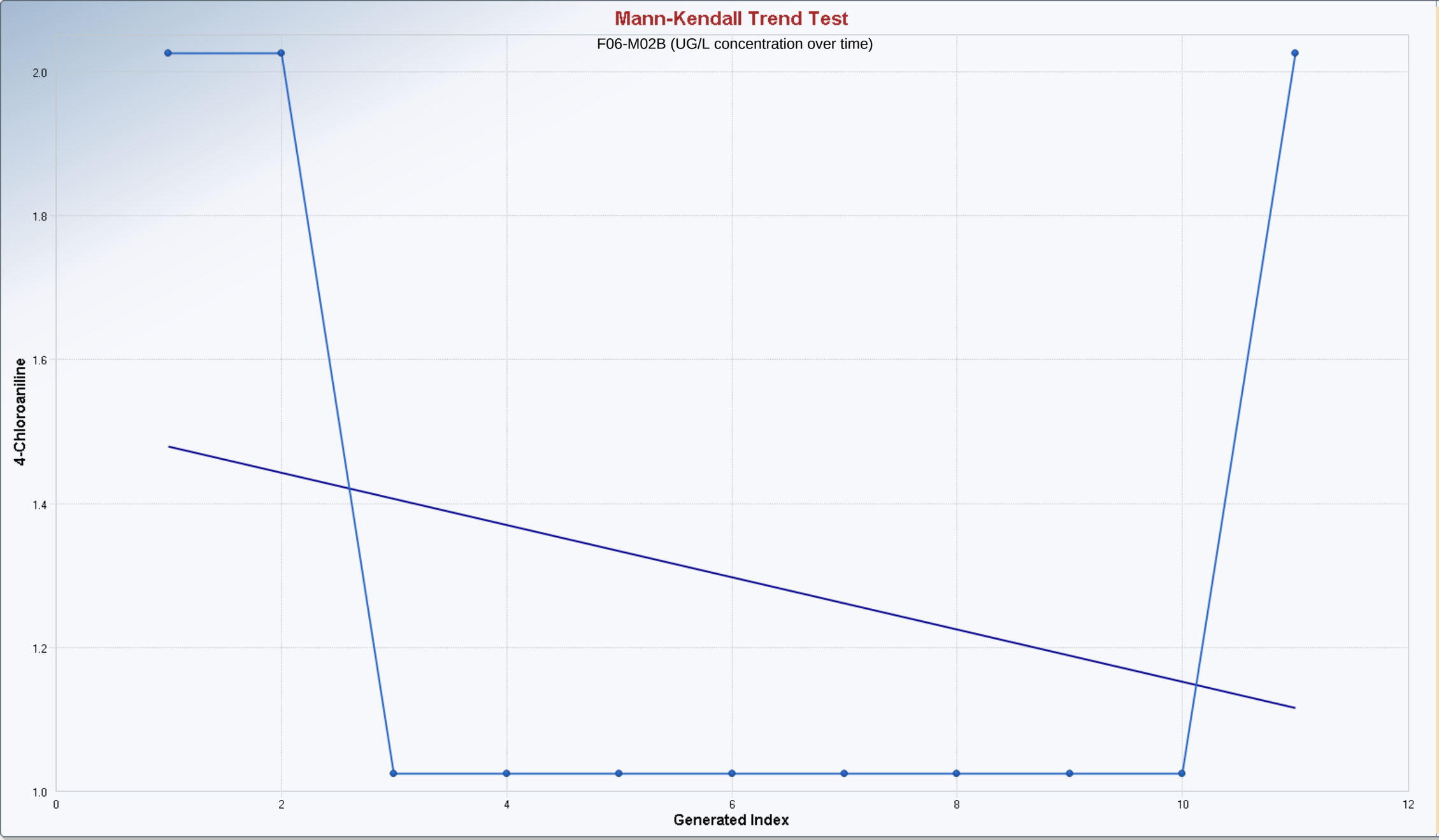
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.2746
Standardized Value of S	-2.6885
M-K Test Value (S)	-34
Tabulated p-value	0.0030
Approximate p-value	0.0036

OLS Regression Line (Blue)

OLS Regression Slope	-0.1682
OLS Regression Intercept	3.8273

Statistically significant evidence of a decreasing trend at the specified level of significance.



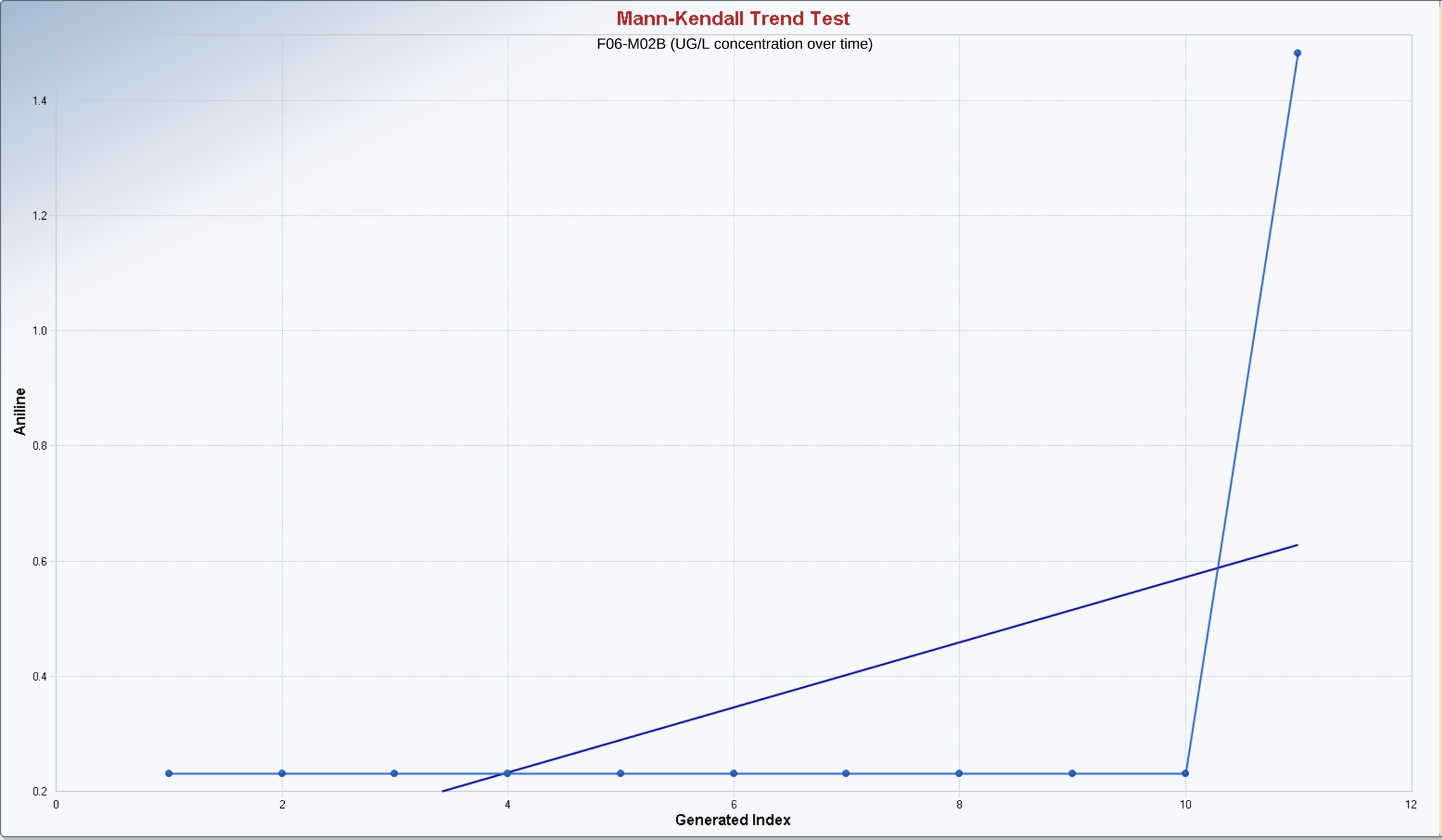
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.7980
Standardized Value of S	-0.7144
M-K Test Value (S)	-8
Tabulated p-value	0.2710
Approximate p-value	0.2375

OLS Regression Line (Blue)

OLS Regression Slope	-0.0364
OLS Regression Intercept	1.4909

Insufficient statistical evidence of a significant trend at the specified level of significance.



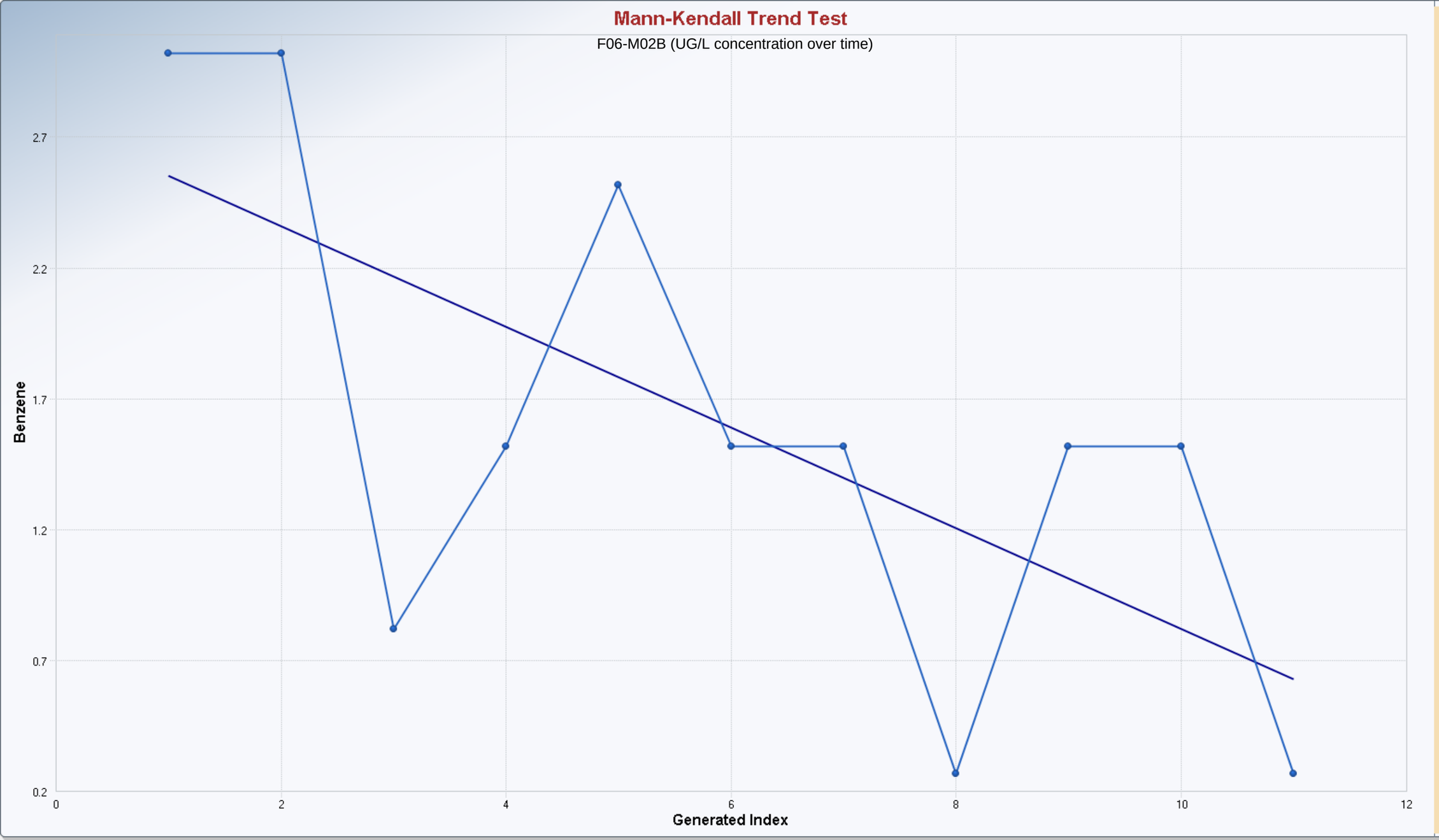
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.3246
Standardized Value of S	1.4230
M-K Test Value (S)	10
Tabulated p-value	0.2230
Approximate p-value	0.0774

OLS Regression Line (Blue)

OLS Regression Slope	0.0568
OLS Regression Intercept	0.0227

Insufficient statistical evidence of a significant trend at the specified level of significance.



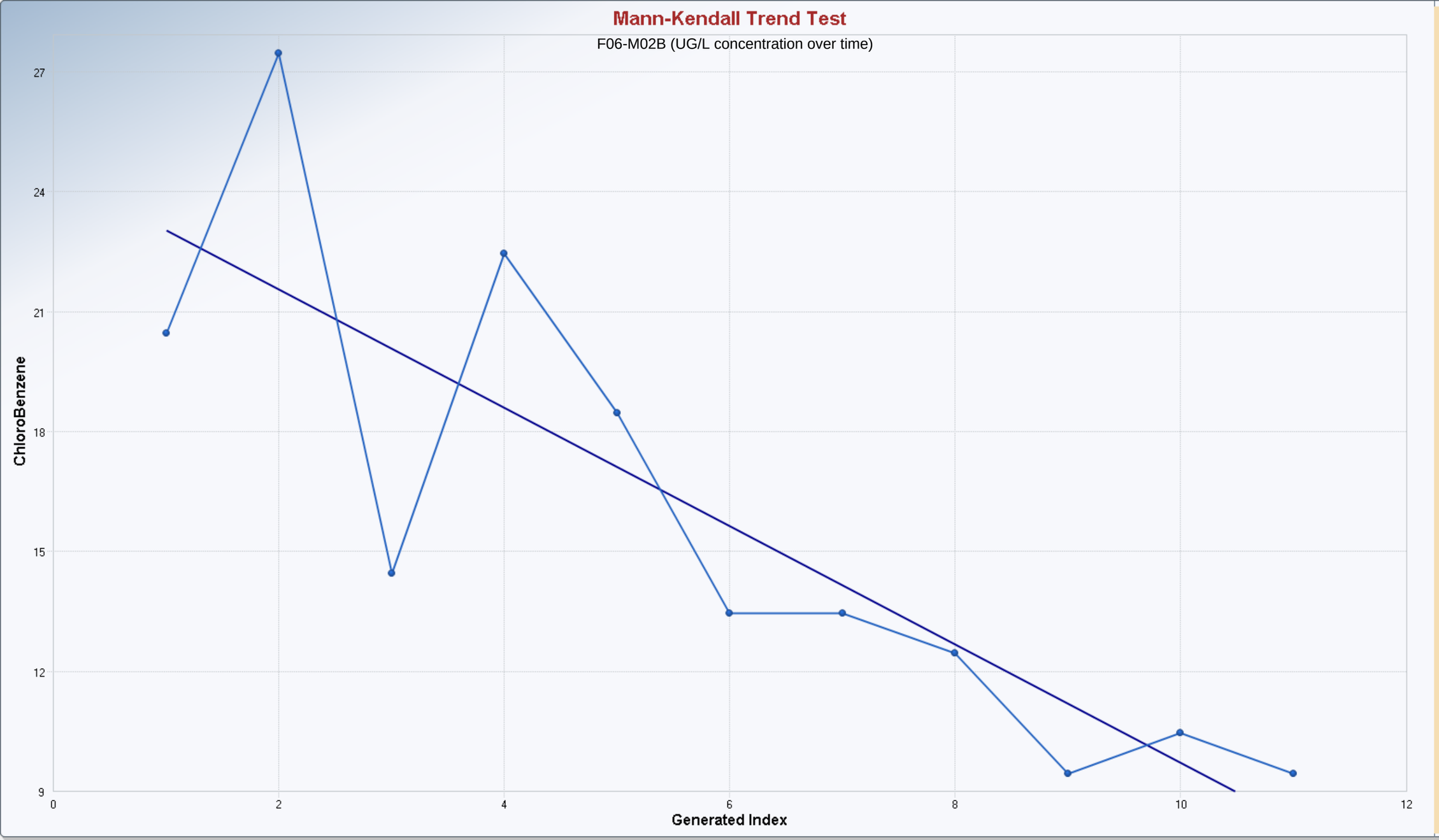
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.0968
Standardized Value of S	-1.9840
M-K Test Value (S)	-25
Tabulated p-value	0.0300
Approximate p-value	0.0236

OLS Regression Line (Blue)

OLS Regression Slope	-0.1923
OLS Regression Intercept	2.7264

Statistically significant evidence of a decreasing trend at the specified level of significance.



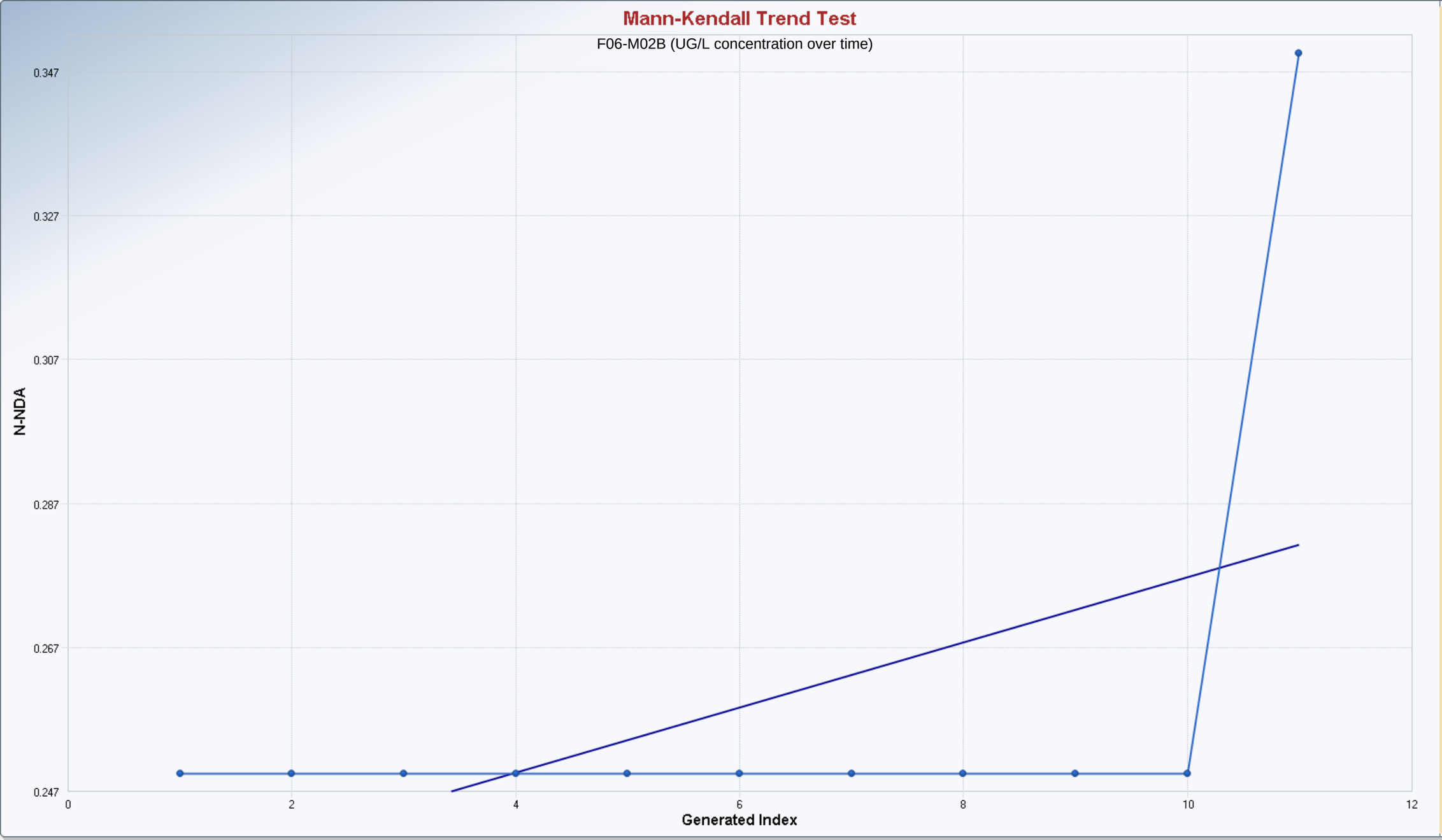
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.7671
Standardized Value of S	-3.2897
M-K Test Value (S)	-43
Tabulated p-value	0.0000
Approximate p-value	0.0005

OLS Regression Line (Blue)

OLS Regression Slope	-1.4818
OLS Regression Intercept	24.0727

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.3246
Standardized Value of S	1.4230
M-K Test Value (S)	10
Tabulated p-value	0.2230
Approximate p-value	0.0774

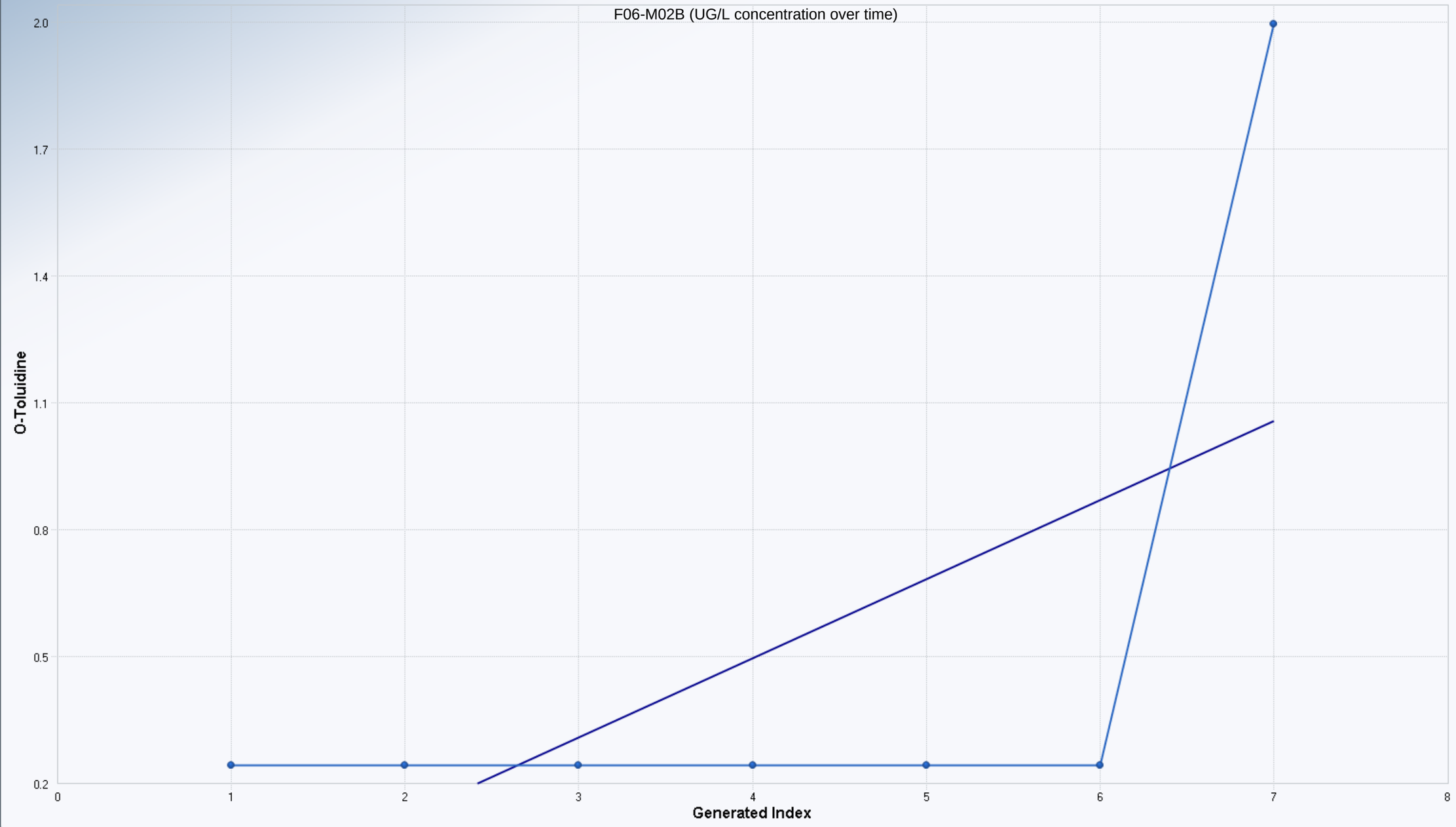
OLS Regression Line (Blue)

OLS Regression Slope	0.0045
OLS Regression Intercept	0.2318

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

F06-M02B (UG/L concentration over time)



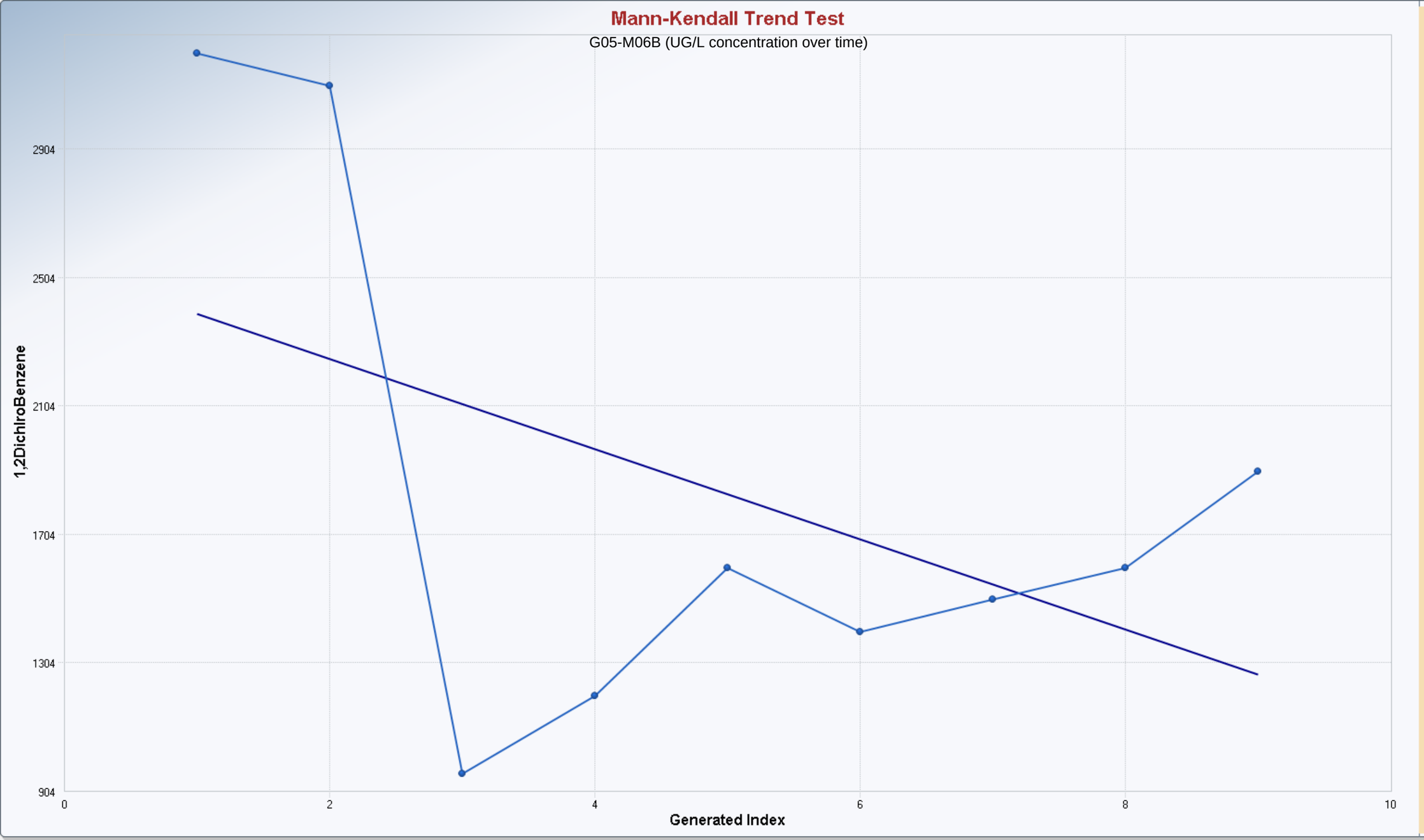
Mann-Kendall Trend Analysis

n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0000
Standardized Value of S	1.2500
M-K Test Value (S)	6
Tabulated p-value	0.1910
Approximate p-value	0.1056

OLS Regression Line (Blue)

OLS Regression Slope	0.1875
OLS Regression Intercept	-0.2500

Insufficient statistical evidence of a significant trend at the specified level of significance.



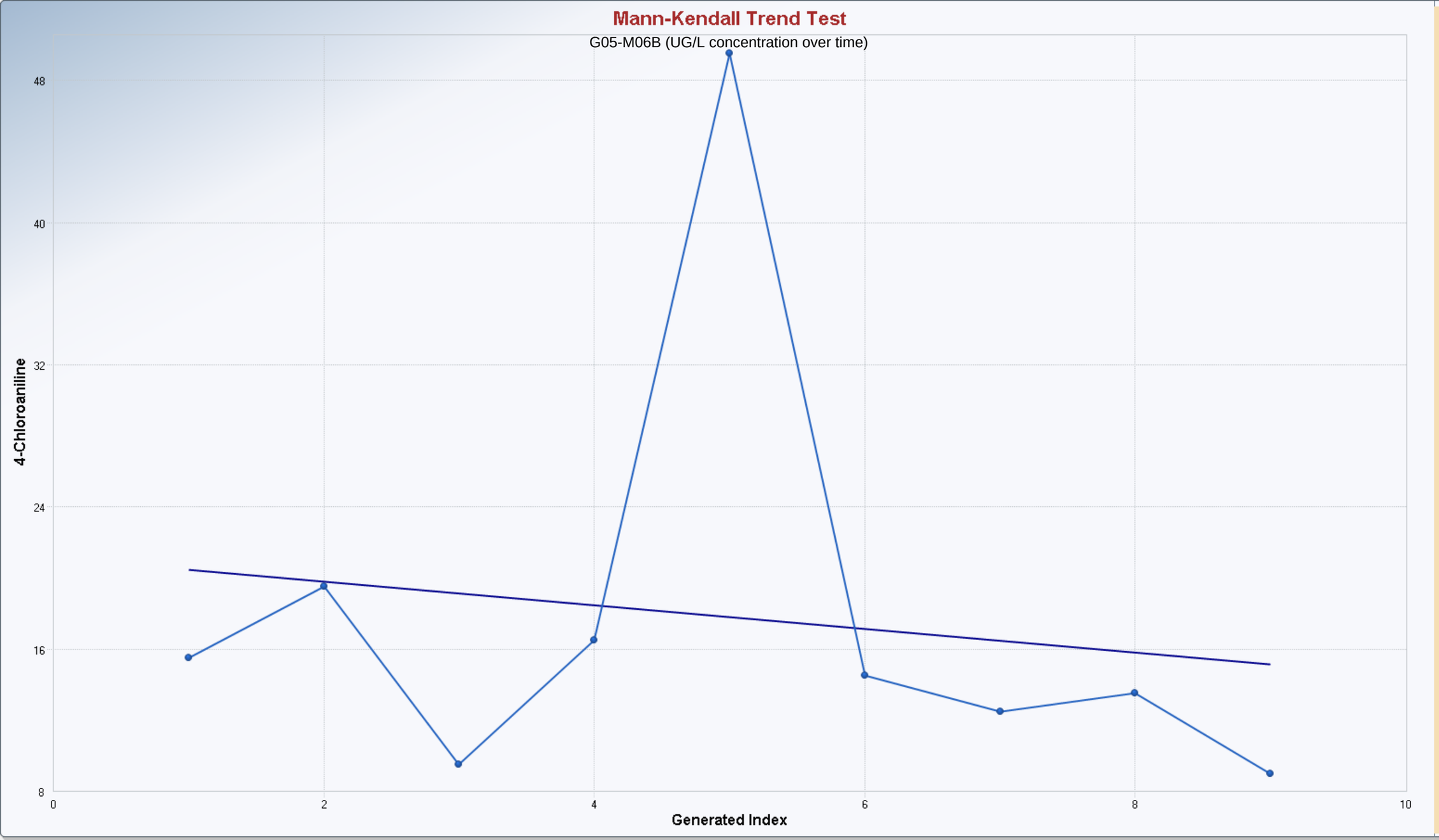
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5400
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	-140.3333
OLS Regression Intercept	2,530.5556

Insufficient statistical evidence of a significant trend at the specified level of significance.



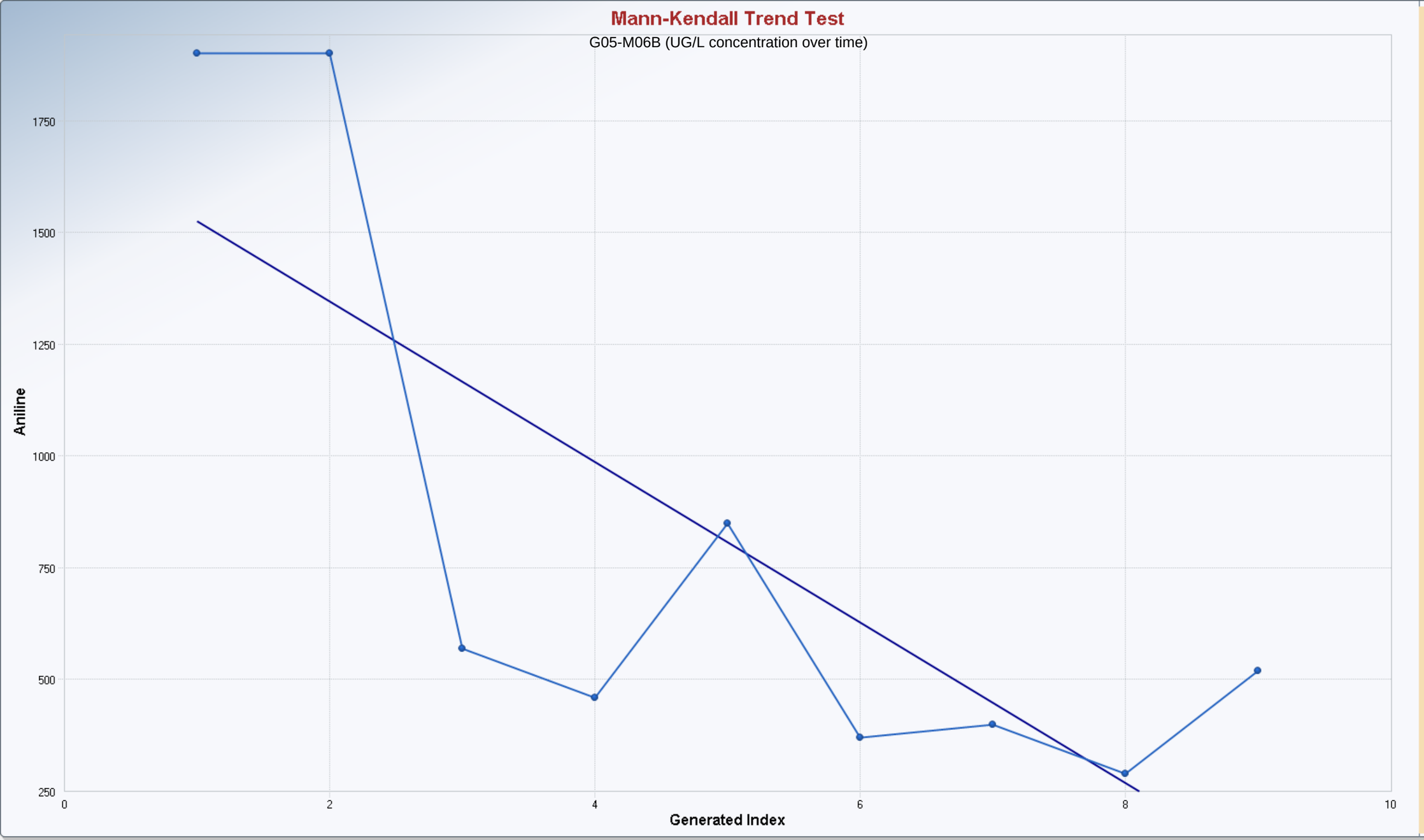
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5917
Standardized Value of S	-1.3553
M-K Test Value (S)	-14
Tabulated p-value	0.0900
Approximate p-value	0.0877

OLS Regression Line (Blue)

OLS Regression Slope	-0.6667
OLS Regression Intercept	21.6111

Insufficient statistical evidence of a significant trend at the specified level of significance.



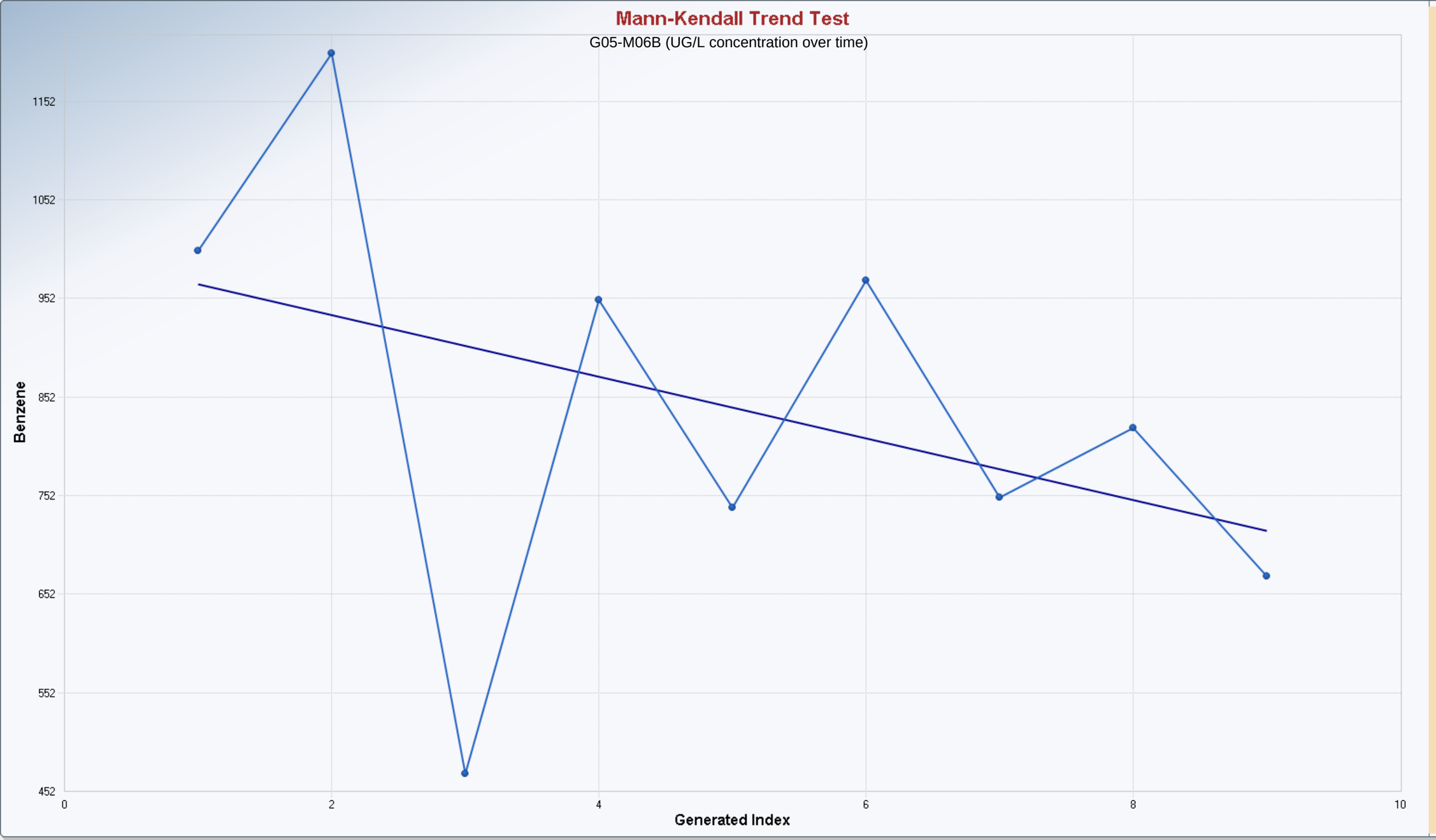
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	-2.0966
M-K Test Value (S)	-21
Tabulated p-value	0.0220
Approximate p-value	0.0180

OLS Regression Line (Blue)

OLS Regression Slope	-179.6667
OLS Regression Intercept	1,705.0000

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5917
Standardized Value of S	-1.1468
M-K Test Value (S)	-12
Tabulated p-value	0.1300
Approximate p-value	0.1257

OLS Regression Line (Blue)

OLS Regression Slope	-31.3333
OLS Regression Intercept	997.7778

Insufficient statistical evidence of a significant trend at the specified level of significance.

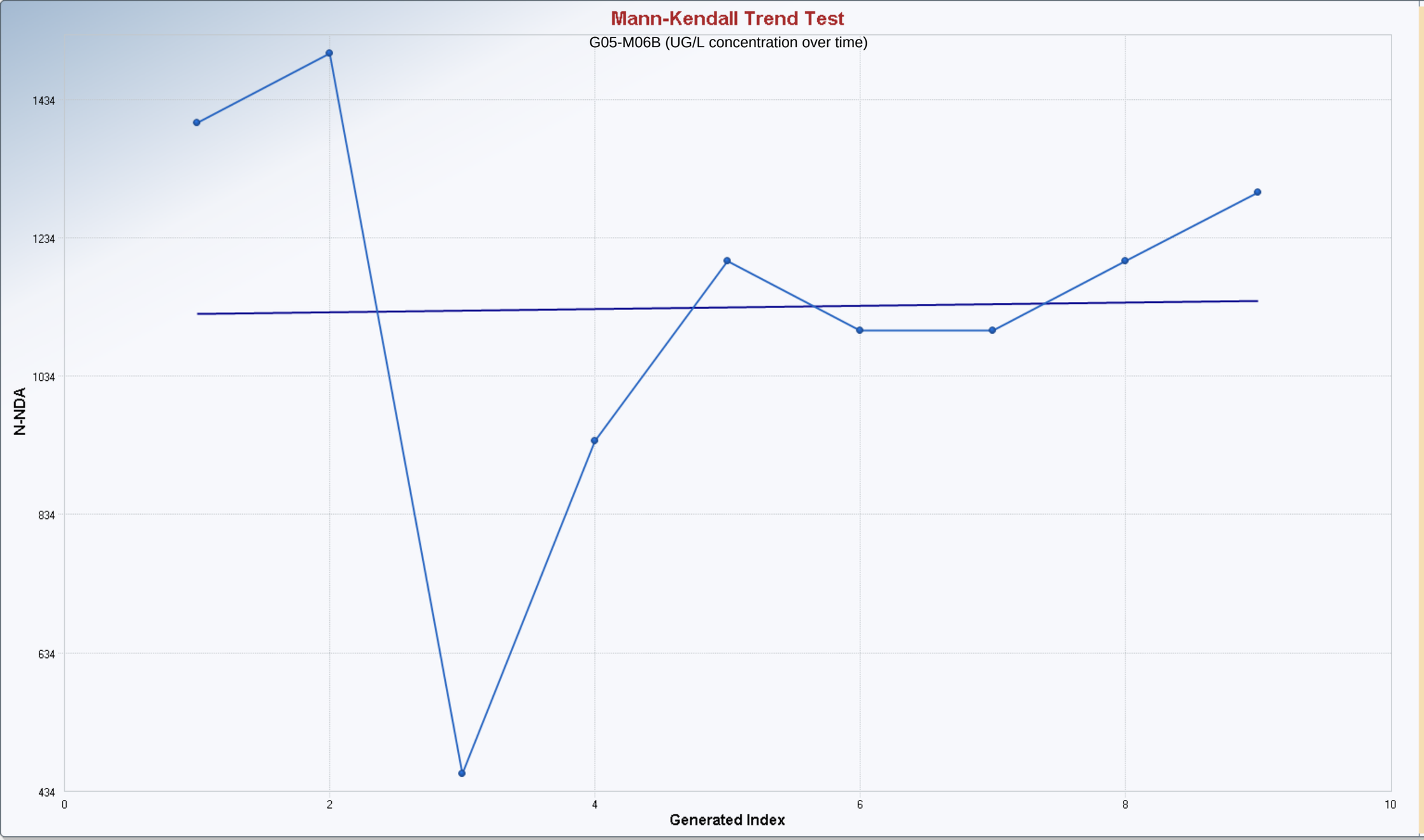
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.3452
Standardized Value of S	-0.9631
M-K Test Value (S)	-10
Tabulated p-value	0.1790
Approximate p-value	0.1678

OLS Regression Line (Blue)

OLS Regression Slope	-813.3333
OLS Regression Intercept	17,644.4444

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.4868
Standardized Value of S	0.1054
M-K Test Value (S)	2
Tabulated p-value	0.4600
Approximate p-value	0.4580

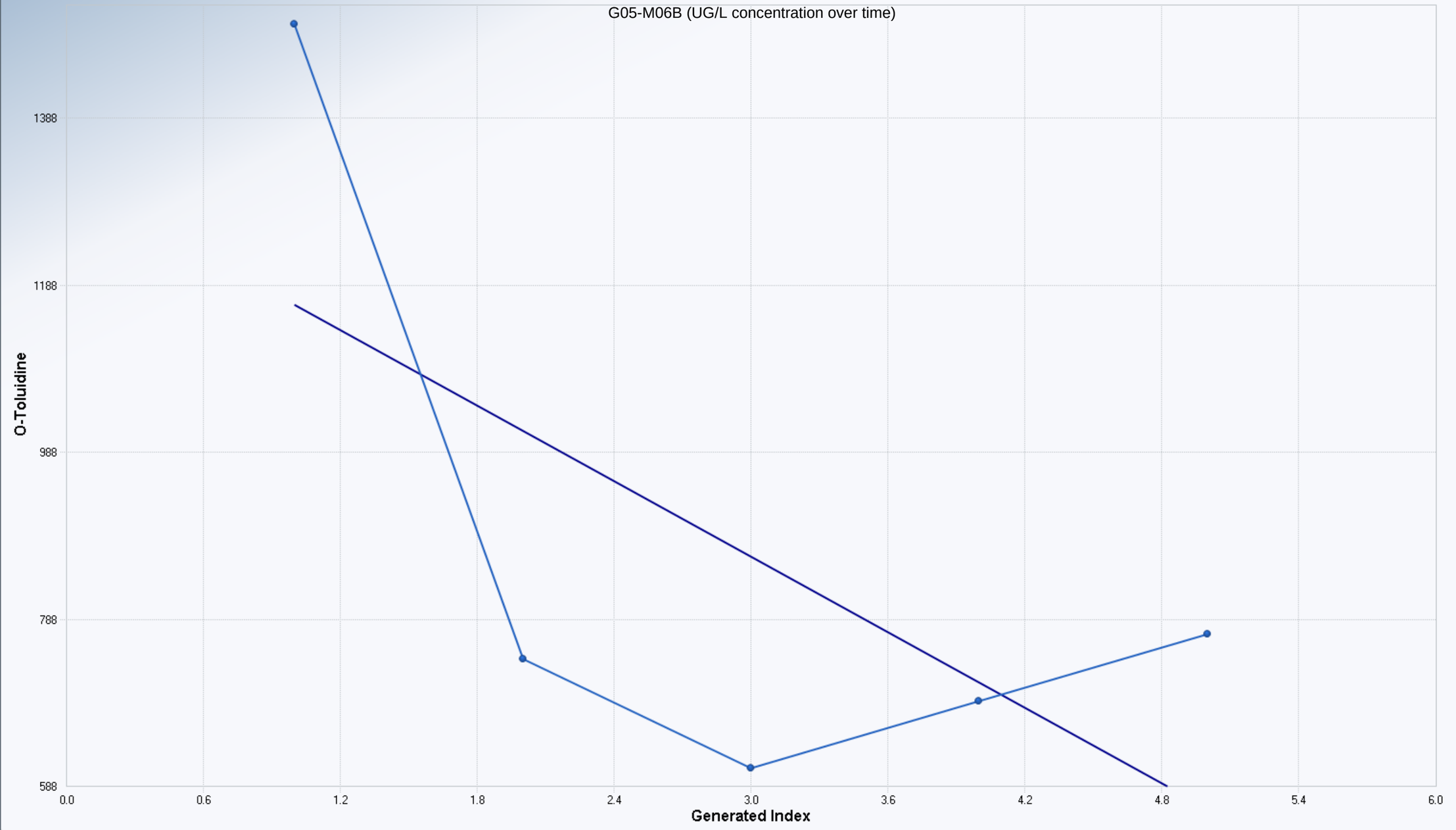
OLS Regression Line (Blue)

OLS Regression Slope	2.3333
OLS Regression Intercept	1,121.6667

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

G05-M06B (UG/L concentration over time)



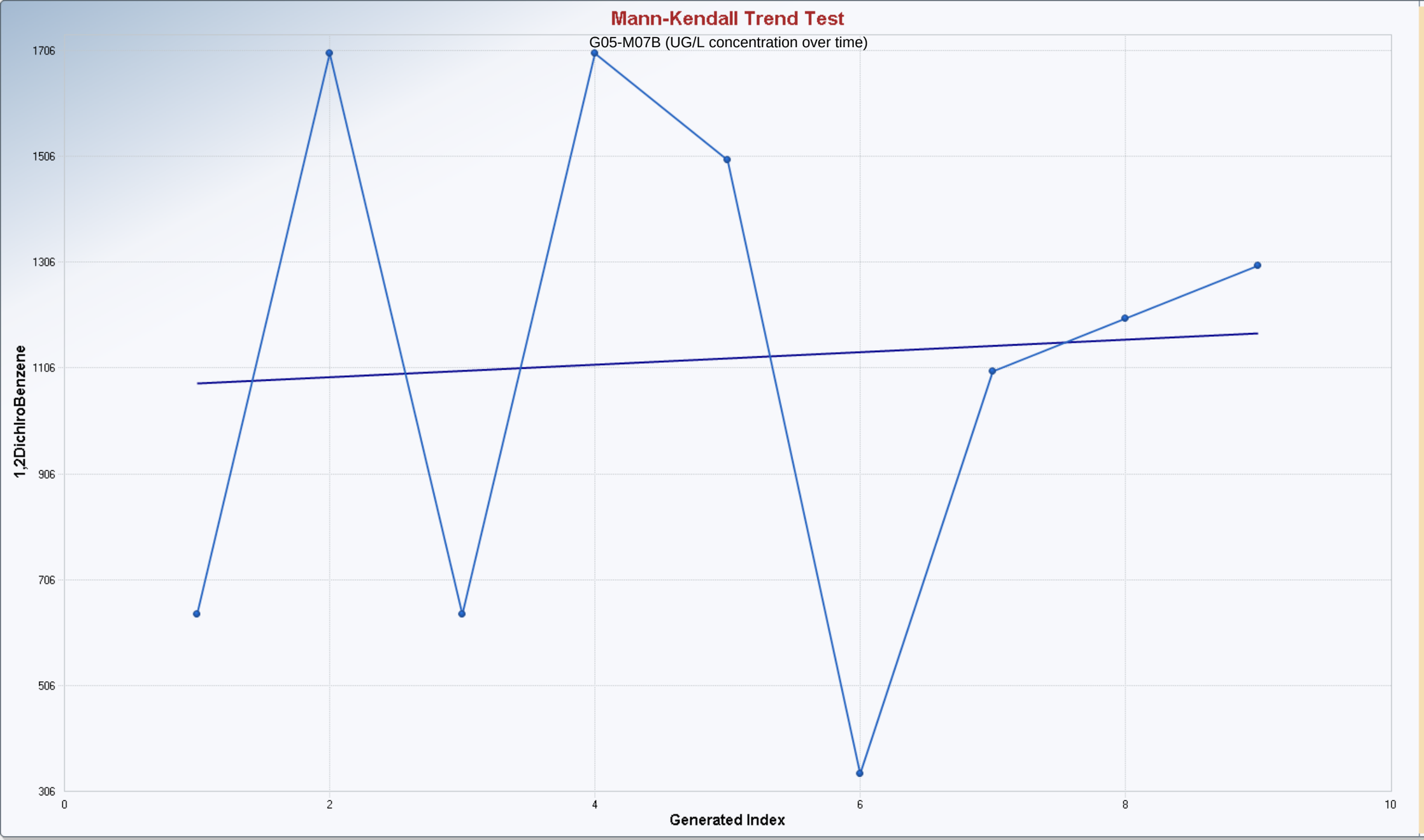
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0825
Standardized Value of S	-0.2449
M-K Test Value (S)	-2
Tabulated p-value	0.4080
Approximate p-value	0.4032

OLS Regression Line (Blue)

OLS Regression Slope	-151.0000
OLS Regression Intercept	1,315.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.



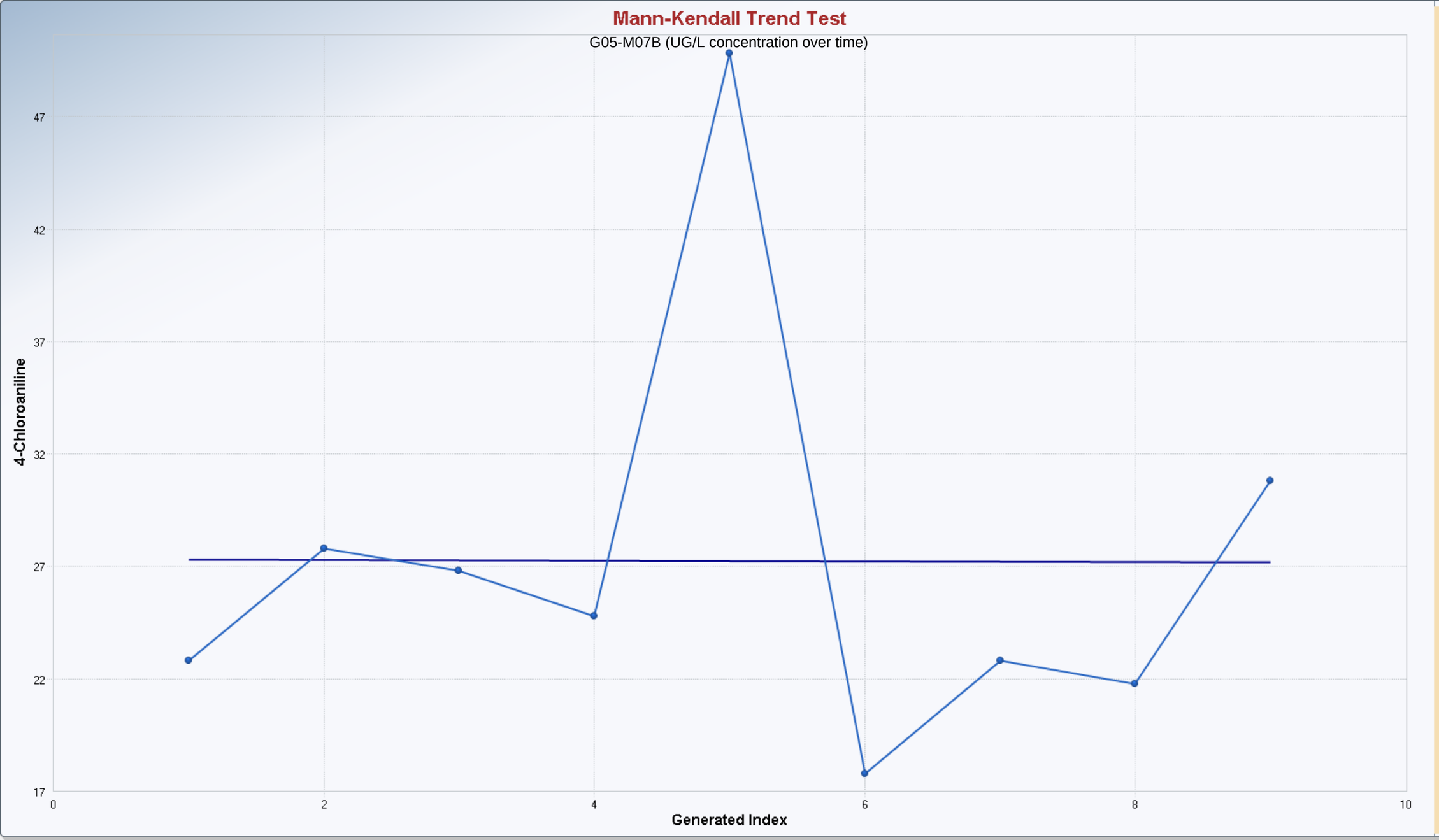
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.4868
Standardized Value of S	
M-K Test Value (S)	0
Tabulated p-value	0.5400
Approximate p-value	

OLS Regression Line (Blue)

OLS Regression Slope	11.6667
OLS Regression Intercept	1,066.1111

Insufficient statistical evidence of a significant trend at the specified level of significance.



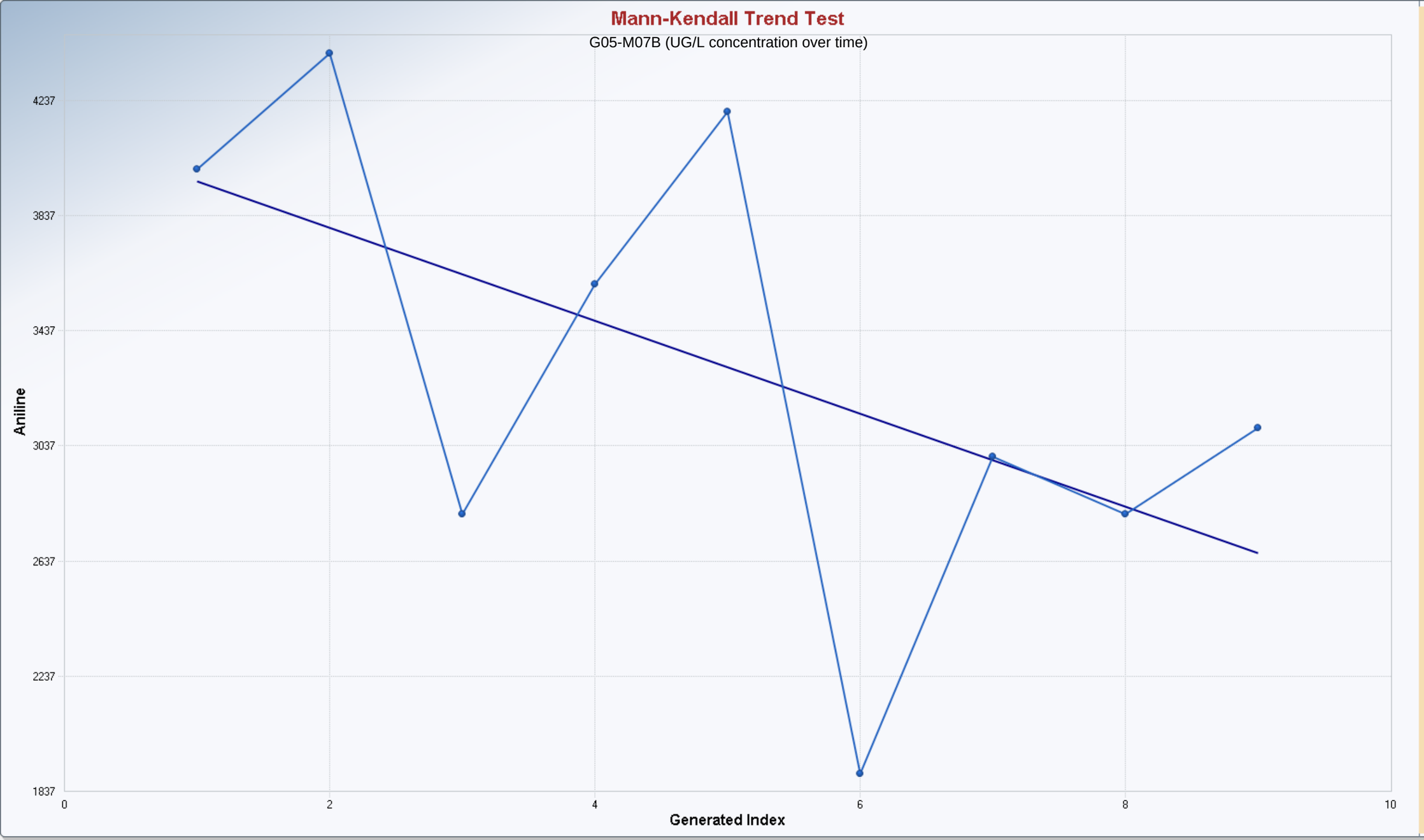
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	-0.2097
M-K Test Value (S)	-3
Tabulated p-value	0.4600
Approximate p-value	0.4170

OLS Regression Line (Blue)

OLS Regression Slope	-0.0167
OLS Regression Intercept	27.5278

Insufficient statistical evidence of a significant trend at the specified level of significance.



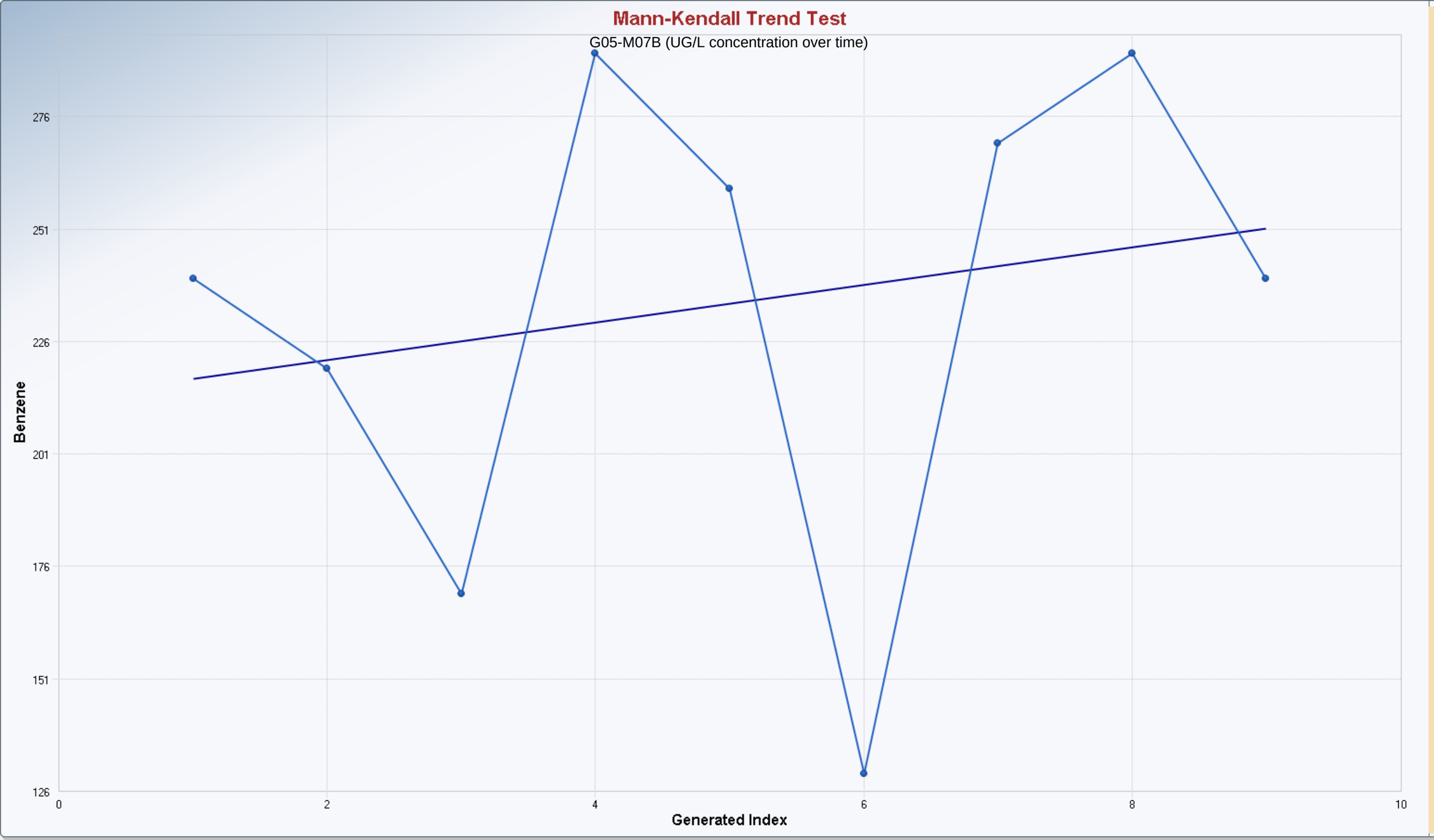
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	-1.0483
M-K Test Value (S)	-11
Tabulated p-value	0.1790
Approximate p-value	0.1473

OLS Regression Line (Blue)

OLS Regression Slope	-161.6667
OLS Regression Intercept	4,119.4444

Insufficient statistical evidence of a significant trend at the specified level of significance.



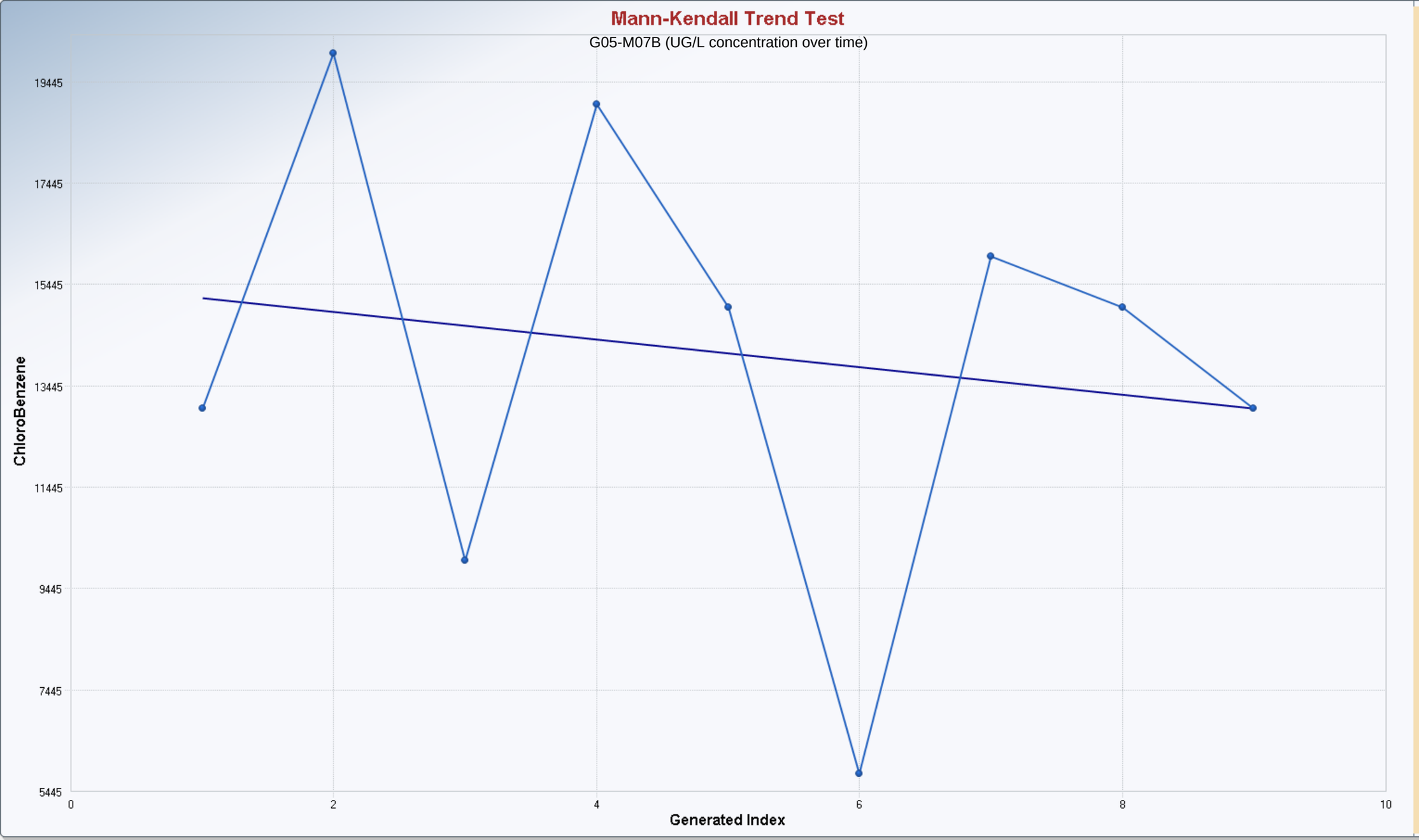
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.4868
Standardized Value of S	0.5270
M-K Test Value (S)	6
Tabulated p-value	0.3060
Approximate p-value	0.2991

OLS Regression Line (Blue)

OLS Regression Slope	4.1667
OLS Regression Intercept	213.6111

Insufficient statistical evidence of a significant trend at the specified level of significance.



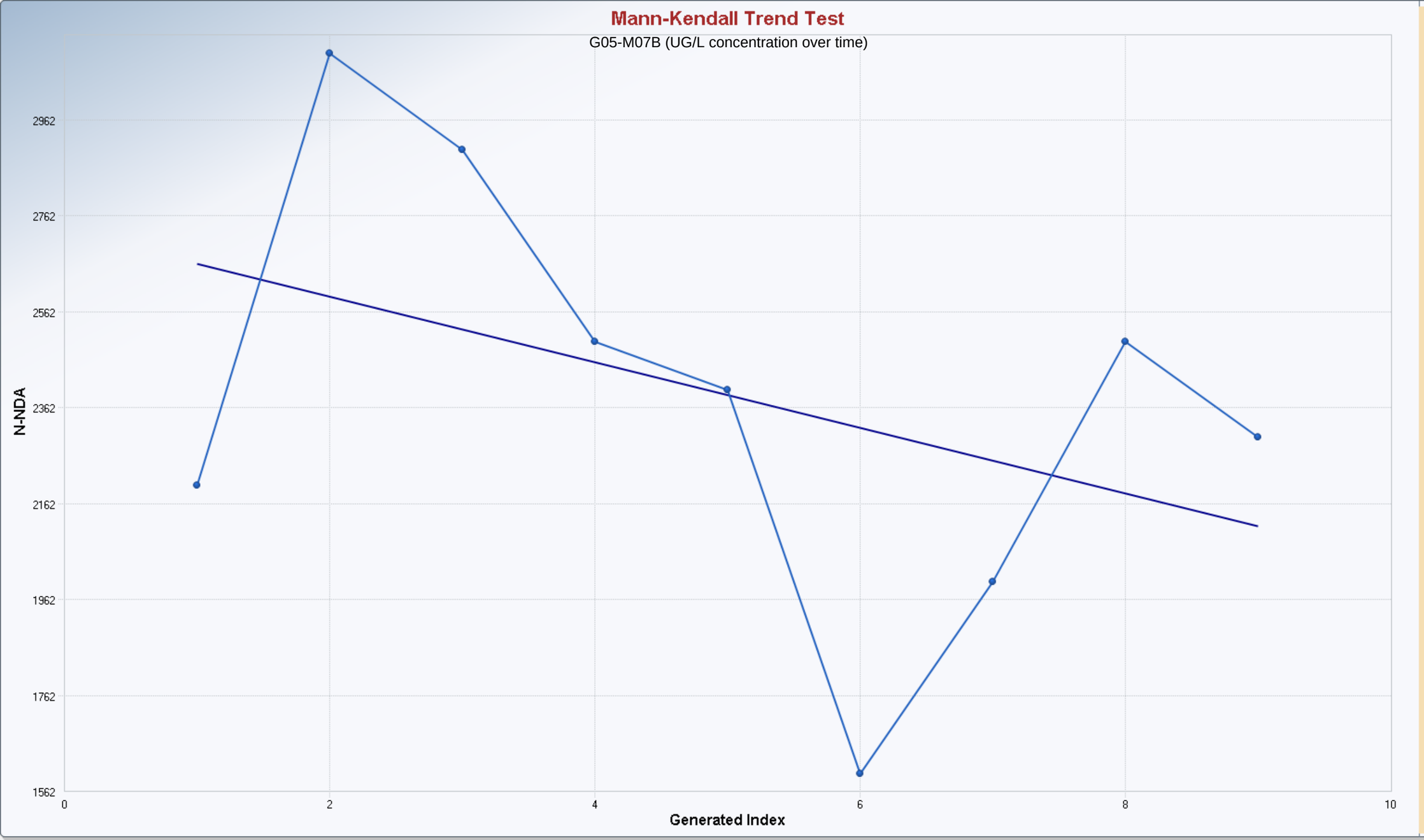
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.4868
Standardized Value of S	-0.5270
M-K Test Value (S)	-6
Tabulated p-value	0.3060
Approximate p-value	0.2991

OLS Regression Line (Blue)

OLS Regression Slope	-270.0000
OLS Regression Intercept	15,438.8889

Insufficient statistical evidence of a significant trend at the specified level of significance.



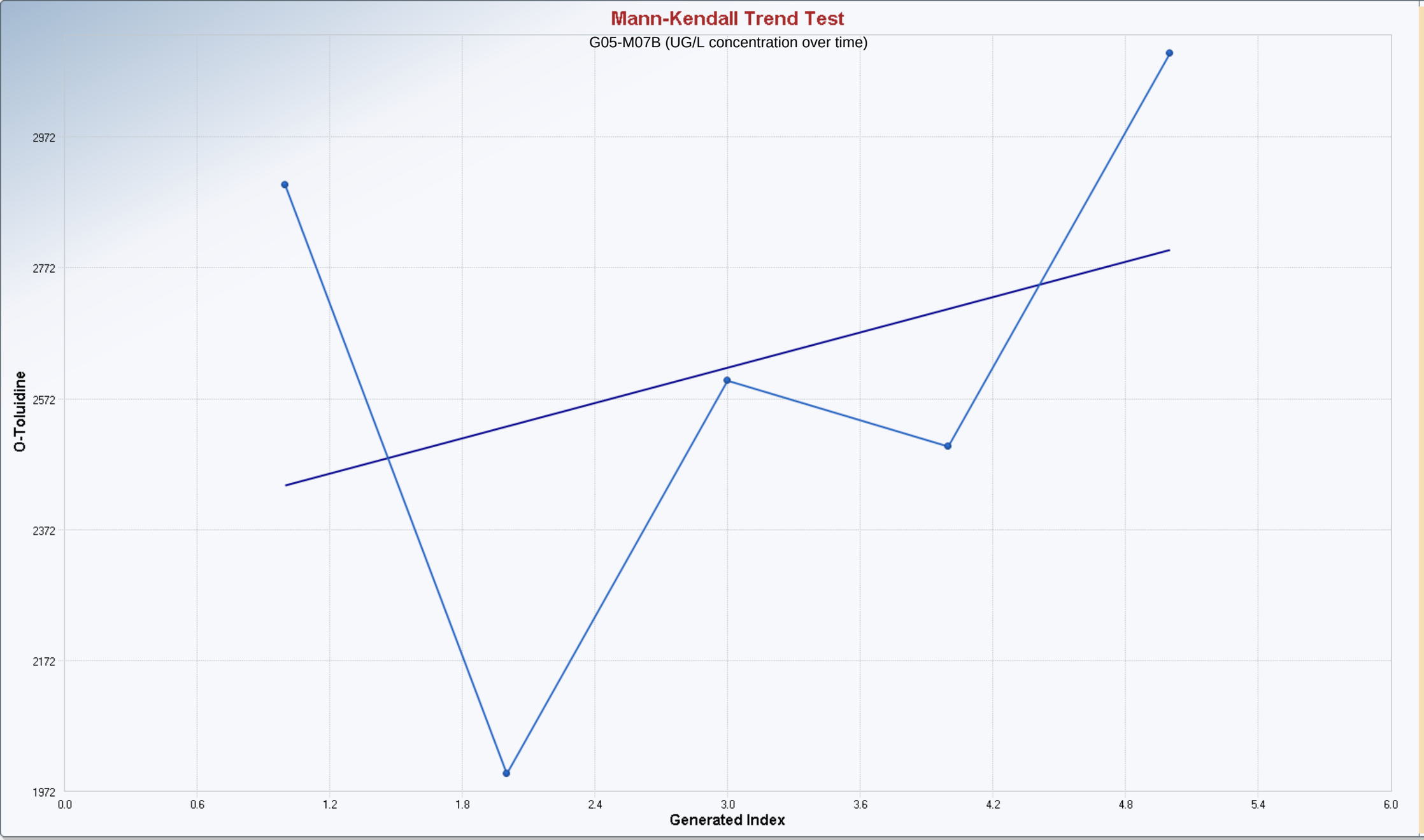
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	-1.0483
M-K Test Value (S)	-11
Tabulated p-value	0.1790
Approximate p-value	0.1473

OLS Regression Line (Blue)

OLS Regression Slope	-68.3333
OLS Regression Intercept	2,730.5556

Insufficient statistical evidence of a significant trend at the specified level of significance.



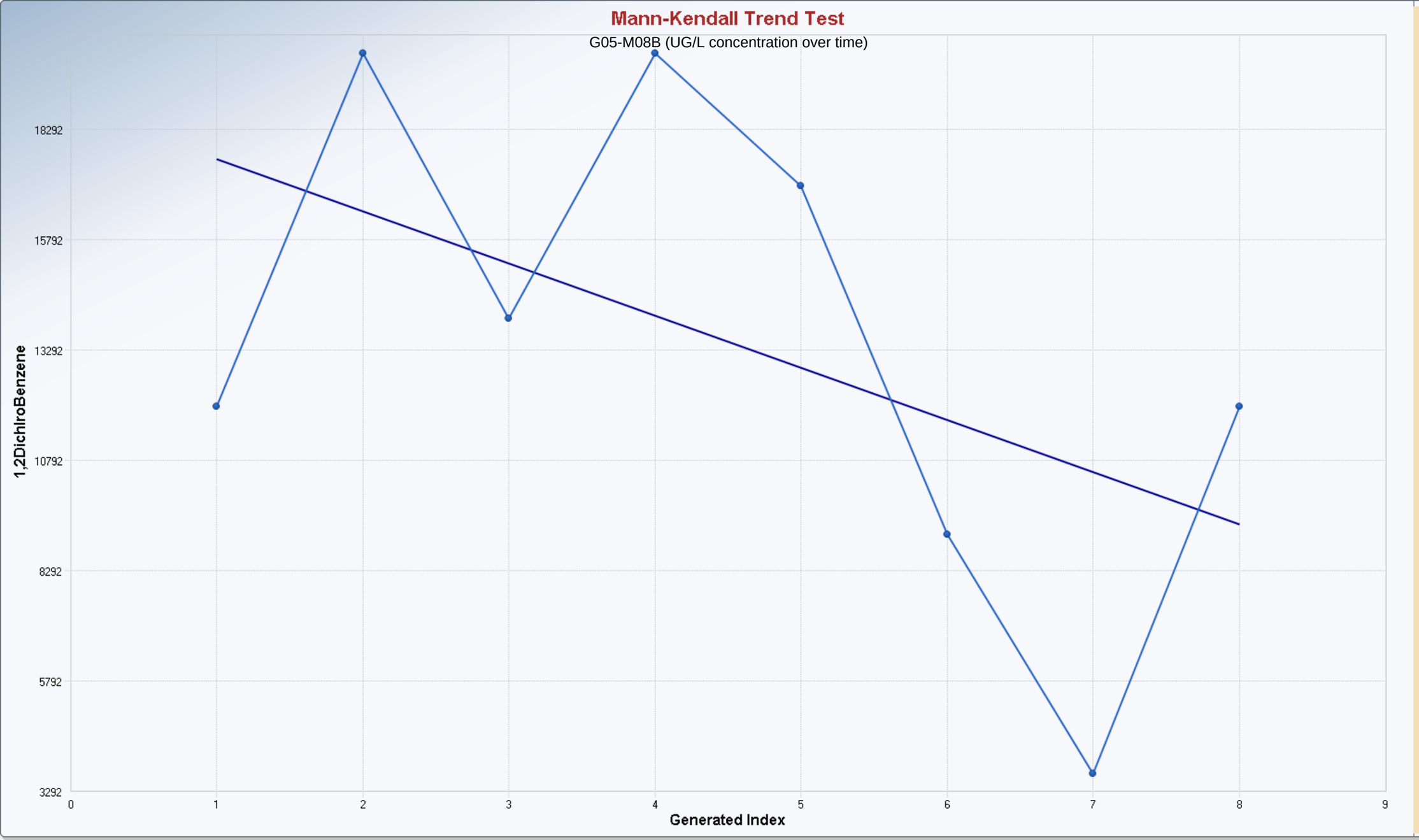
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0825
Standardized Value of S	0.2449
M-K Test Value (S)	2
Tabulated p-value	0.4080
Approximate p-value	0.4032

OLS Regression Line (Blue)

OLS Regression Slope	90.0000
OLS Regression Intercept	2,350.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.9582
Standardized Value of S	-1.1309
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1290

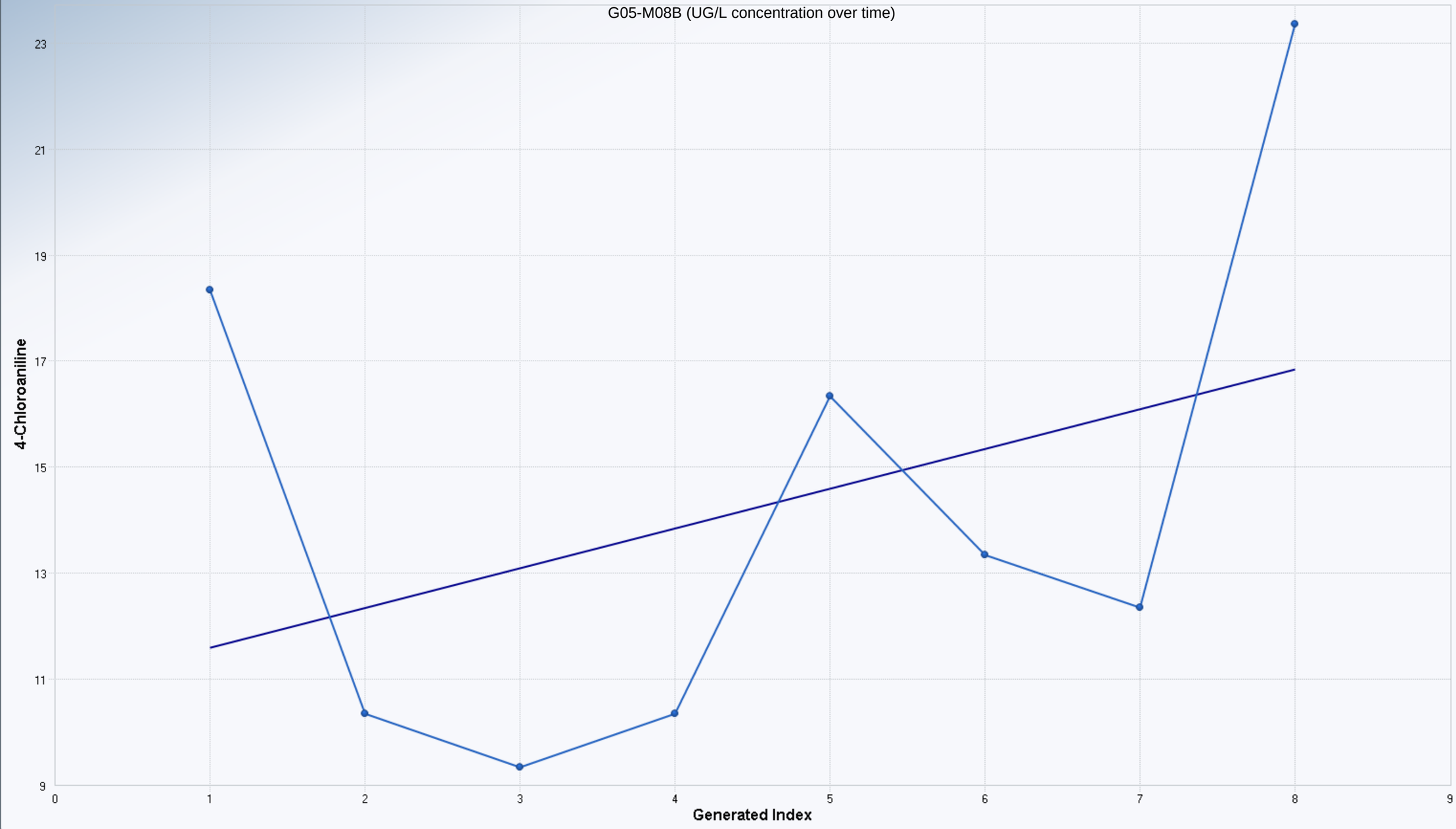
OLS Regression Line (Blue)

OLS Regression Slope	-1,180.9524
OLS Regression Intercept	18,789.2857

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

G05-M08B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.7481
M-K Test Value (S)	7
Tabulated p-value	0.2740
Approximate p-value	0.2272

OLS Regression Line (Blue)

OLS Regression Slope	0.7500
OLS Regression Intercept	10.5000

Insufficient statistical evidence of a significant trend at the specified level of significance.

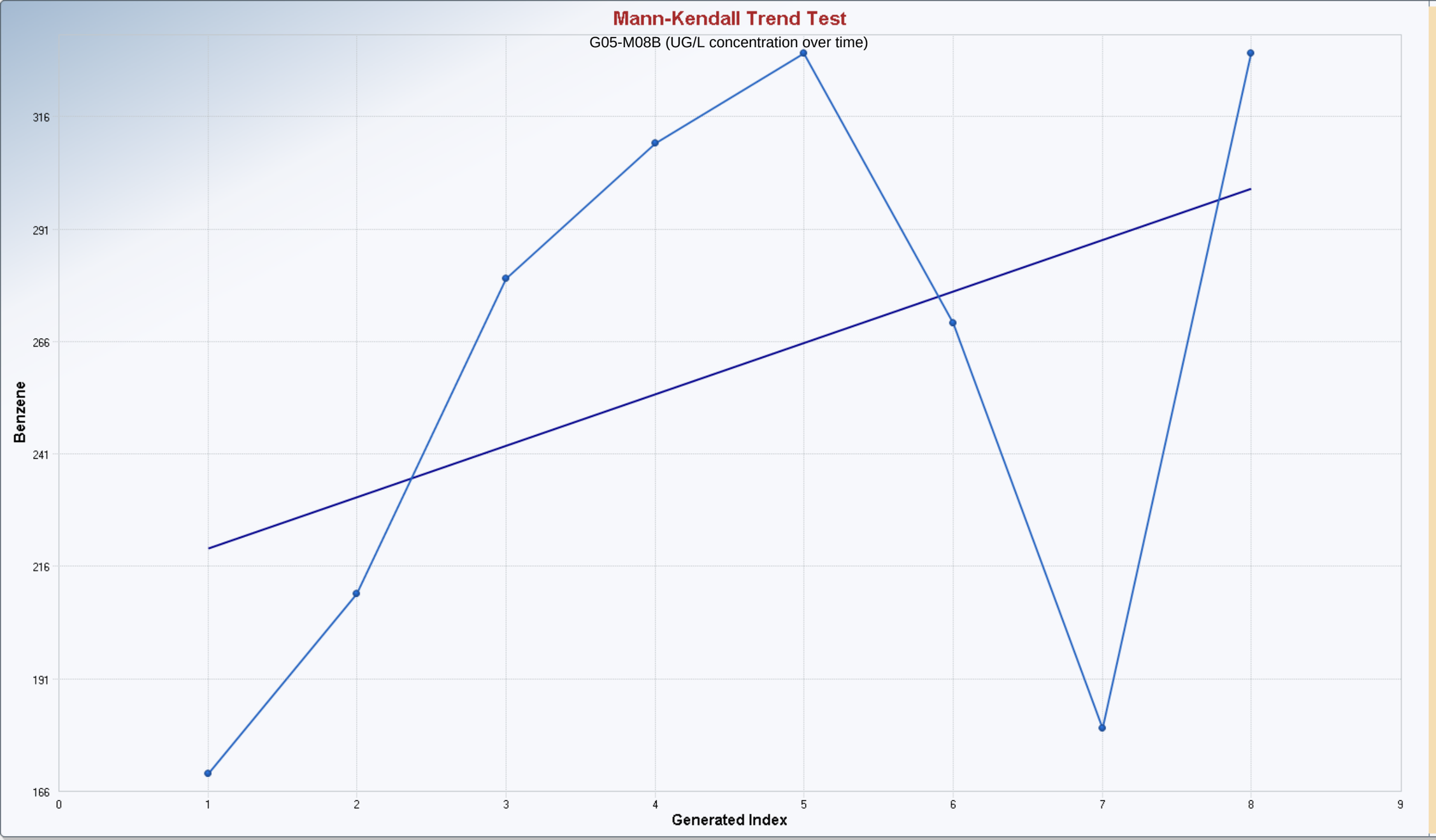
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.4987
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.3090

OLS Regression Line (Blue)

OLS Regression Slope	310.7143
OLS Regression Intercept	4,239.2857

Insufficient statistical evidence of a significant trend at the specified level of significance.



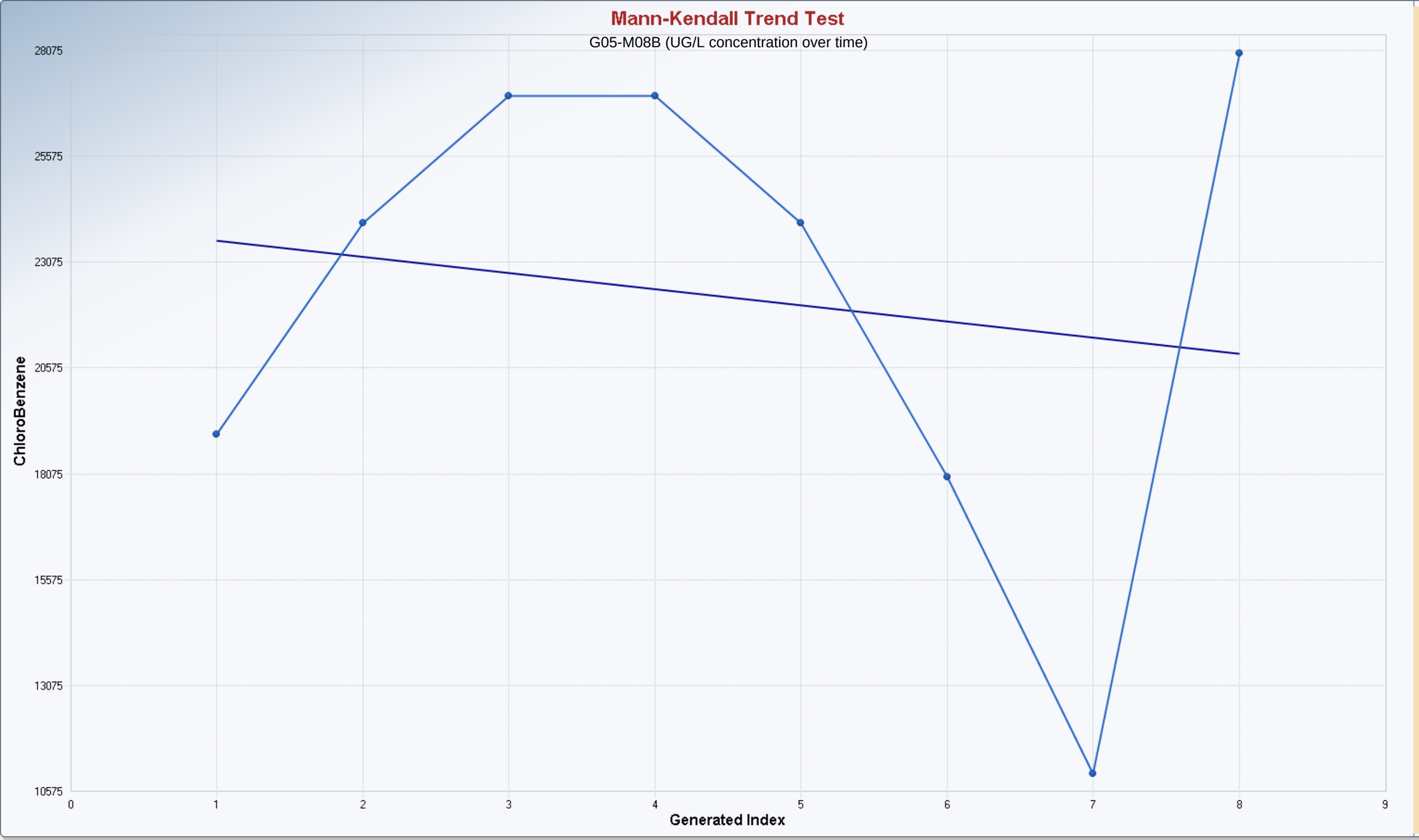
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	1.2468
M-K Test Value (S)	11
Tabulated p-value	0.1380
Approximate p-value	0.1062

OLS Regression Line (Blue)

OLS Regression Slope	11.4286
OLS Regression Intercept	208.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



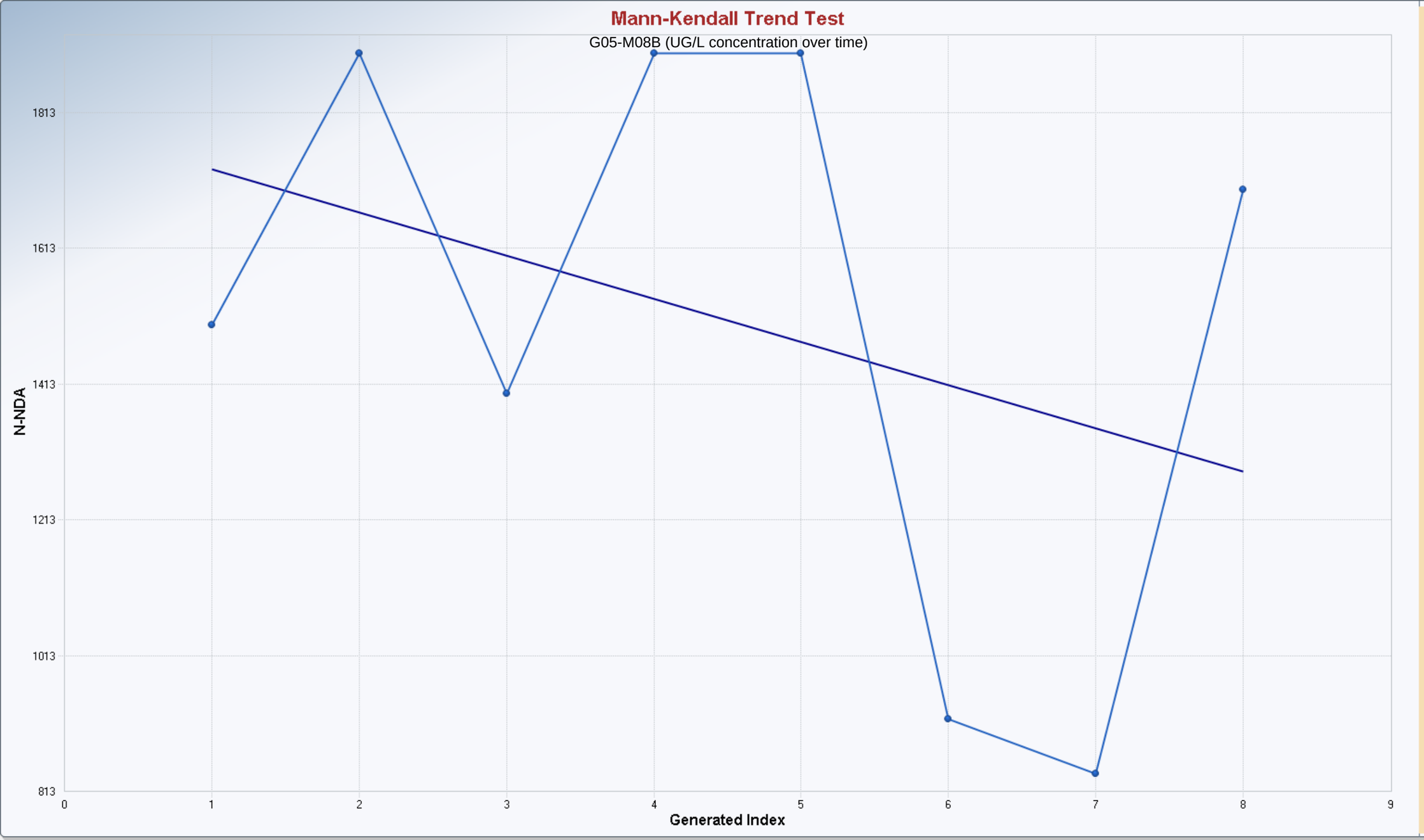
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.9582
Standardized Value of S	
M-K Test Value (S)	0
Tabulated p-value	0.5480
Approximate p-value	

OLS Regression Line (Blue)

OLS Regression Slope	-380.9524
OLS Regression Intercept	23,964.2857

Insufficient statistical evidence of a significant trend at the specified level of significance.



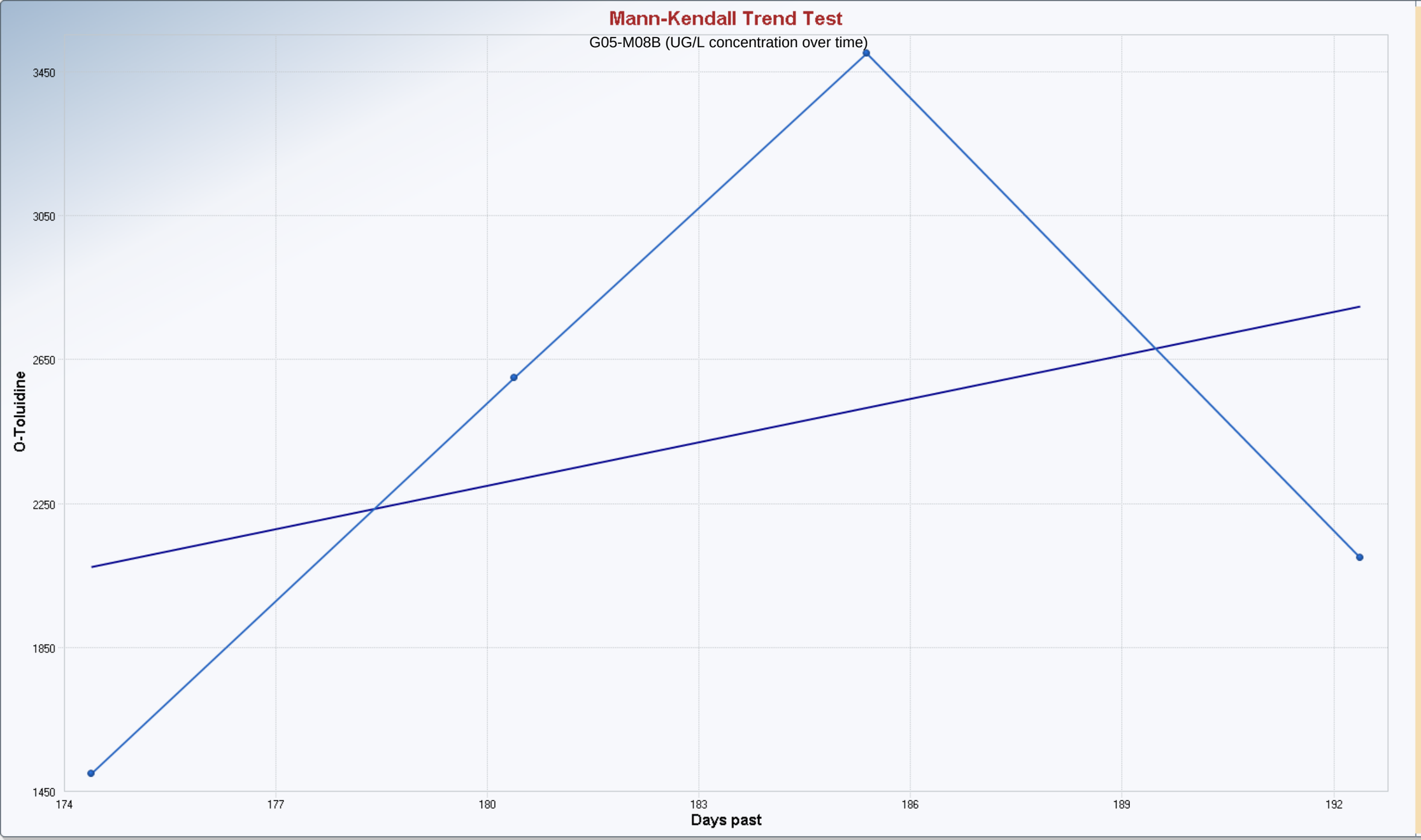
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.8528
Standardized Value of S	-0.7641
M-K Test Value (S)	-7
Tabulated p-value	0.2740
Approximate p-value	0.2224

OLS Regression Line (Blue)

OLS Regression Slope	-63.5714
OLS Regression Intercept	1,793.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



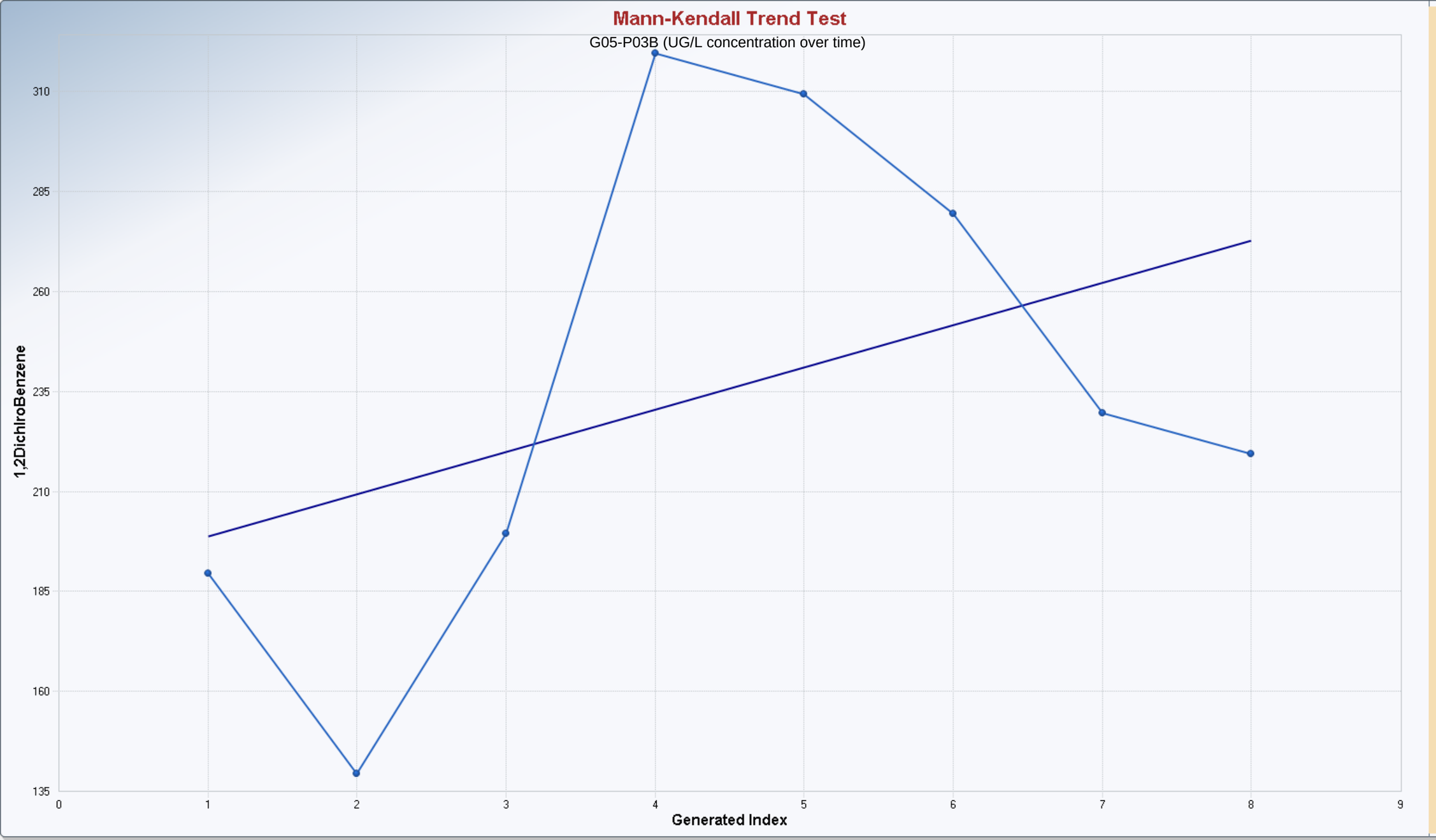
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	0.3397
M-K Test Value (S)	2
Tabulated p-value	0.3750
Approximate p-value	0.3670

OLS Regression Line (Blue)

OLS Regression Slope	40.2003
OLS Regression Intercept	-4,921.6023

Insufficient statistical evidence of a significant trend at the specified level of significance.



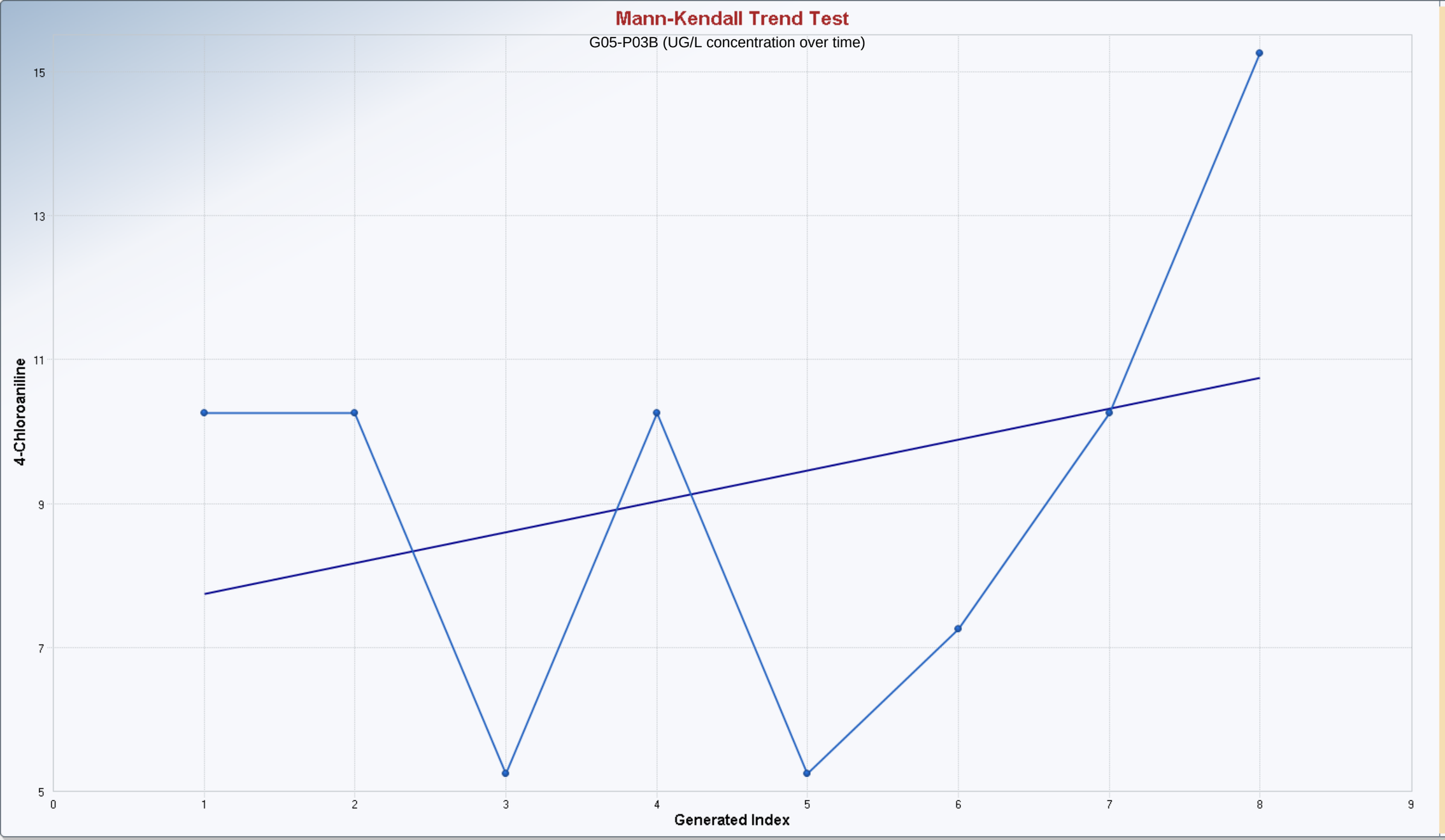
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	0.6186
M-K Test Value (S)	6
Tabulated p-value	0.2740
Approximate p-value	0.2681

OLS Regression Line (Blue)

OLS Regression Slope	10.5952
OLS Regression Intercept	188.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.4610
Standardized Value of S	0.5361
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.2959

OLS Regression Line (Blue)

OLS Regression Slope	0.4286
OLS Regression Intercept	7.0714

Insufficient statistical evidence of a significant trend at the specified level of significance.

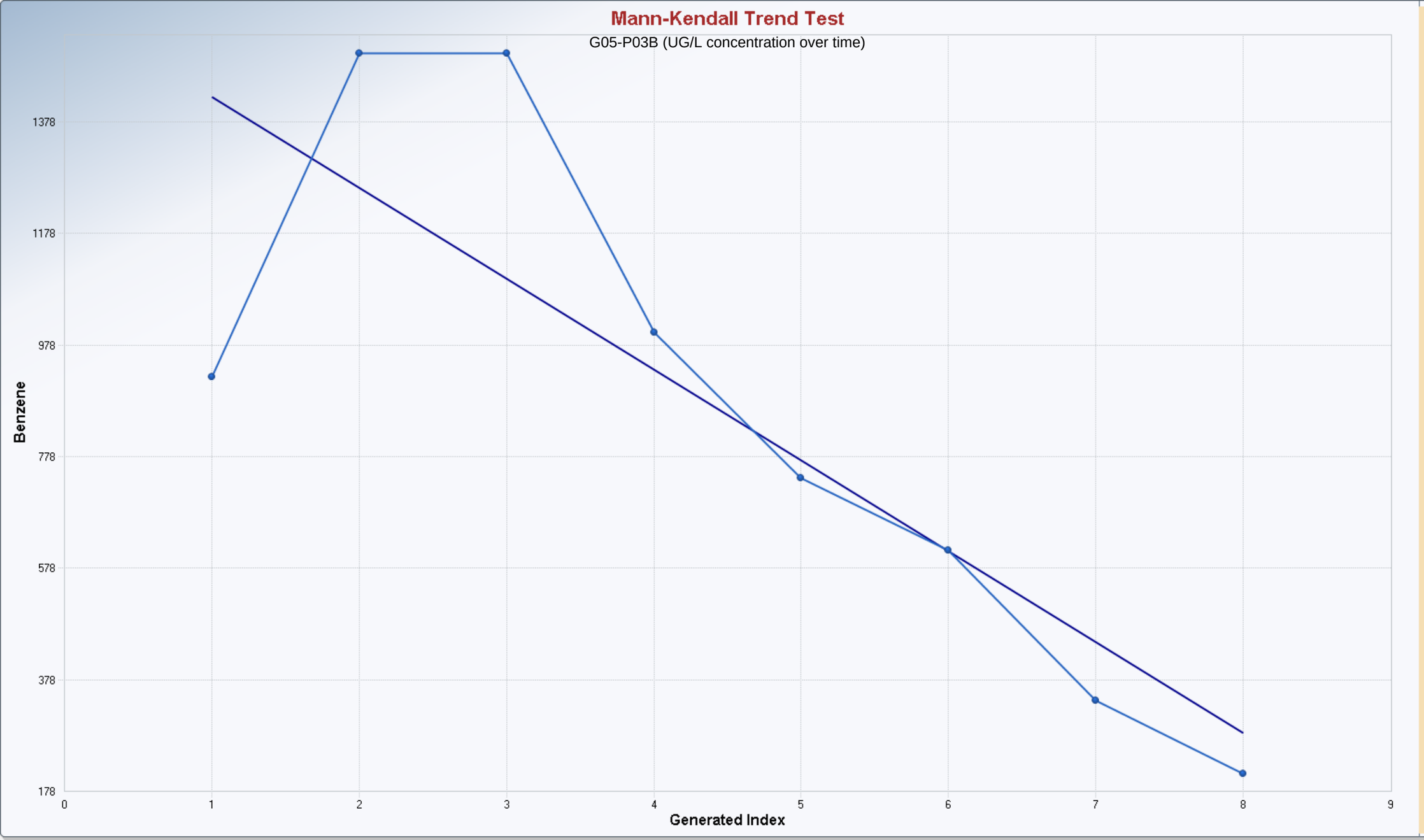
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.8528
Standardized Value of S	1.7828
M-K Test Value (S)	15
Tabulated p-value	0.0540
Approximate p-value	0.0373

OLS Regression Line (Blue)

OLS Regression Slope	1.3750
OLS Regression Intercept	3.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.



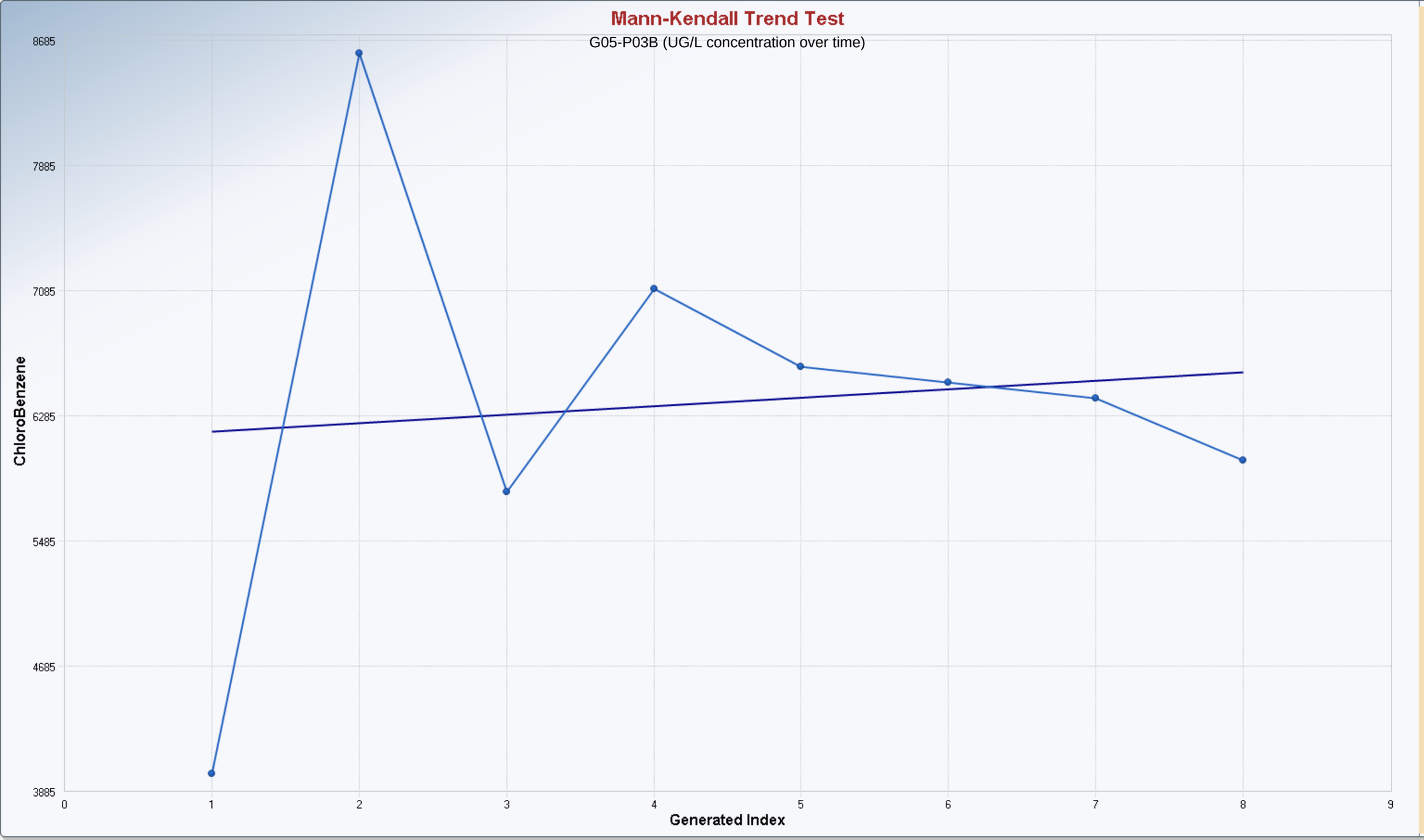
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-2.4935
M-K Test Value (S)	-21
Tabulated p-value	0.0070
Approximate p-value	0.0063

OLS Regression Line (Blue)

OLS Regression Slope	-163.0952
OLS Regression Intercept	1,586.4286

Statistically significant evidence of a decreasing trend at the specified level of significance.



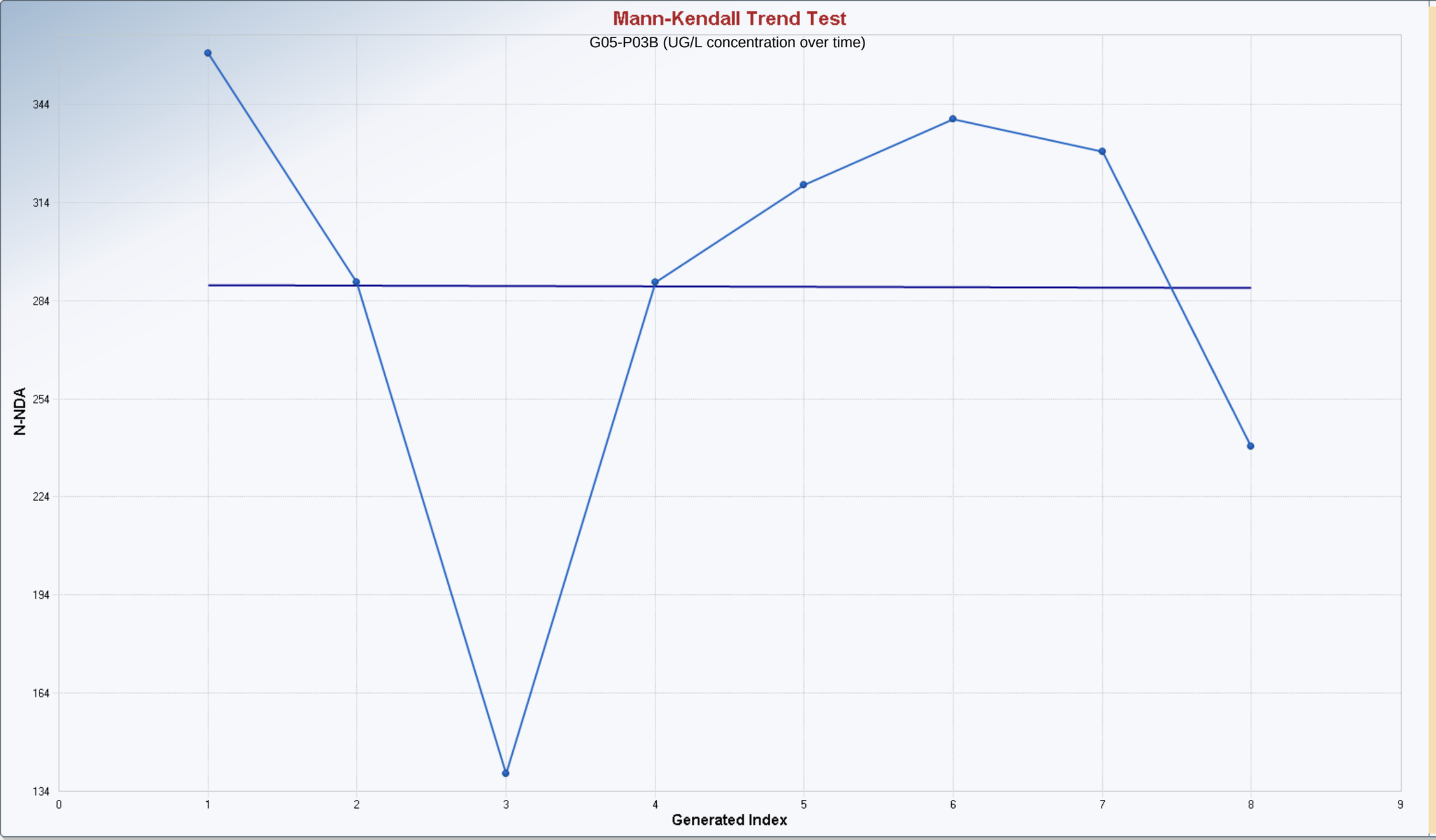
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-0.3712
M-K Test Value (S)	-4
Tabulated p-value	0.3600
Approximate p-value	0.3553

OLS Regression Line (Blue)

OLS Regression Slope	54.7619
OLS Regression Intercept	6,128.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



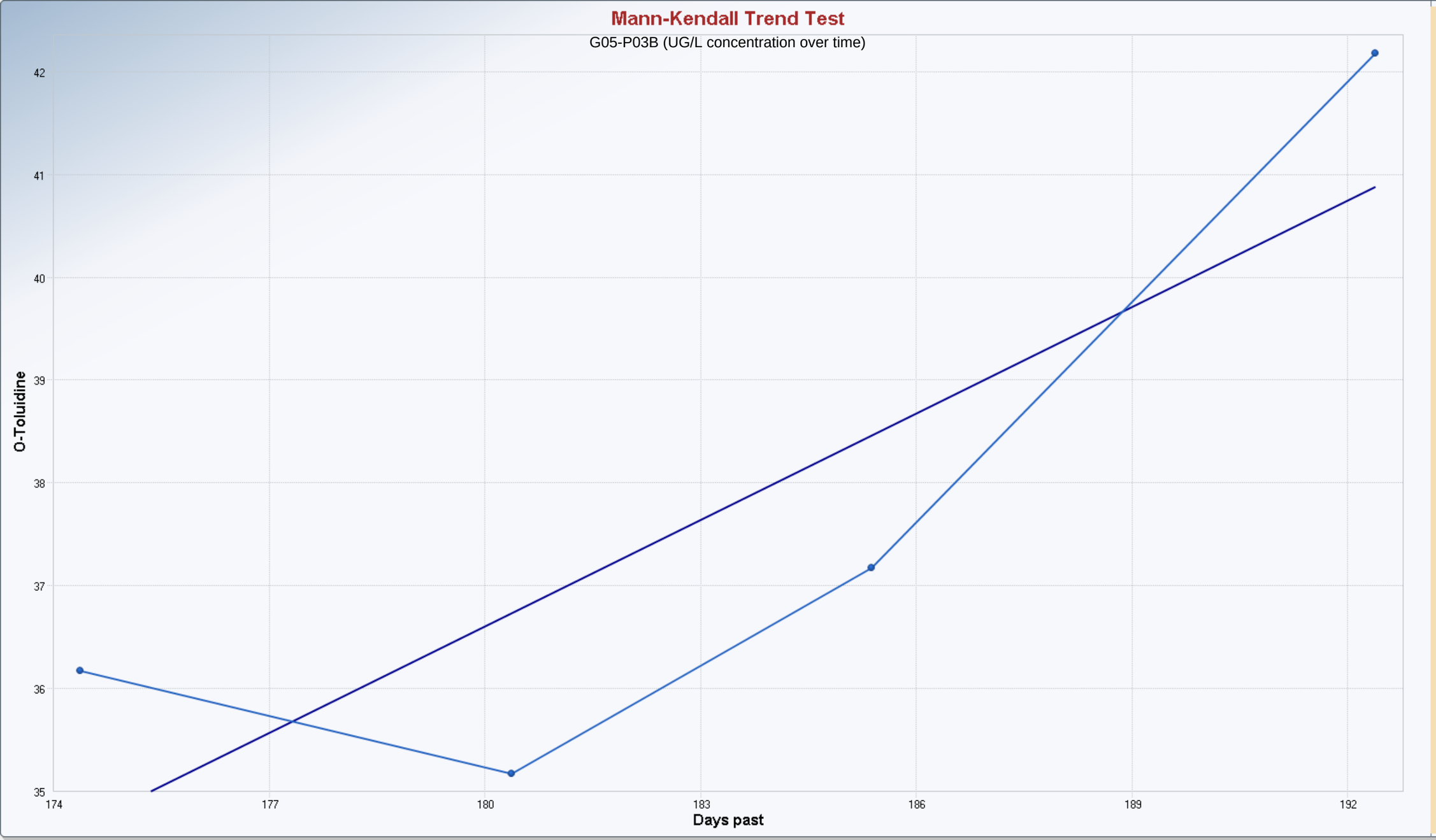
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.0000
M-K Test Value (S)	-1
Tabulated p-value	0.5480
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	-0.1190
OLS Regression Intercept	289.2857

Insufficient statistical evidence of a significant trend at the specified level of significance.



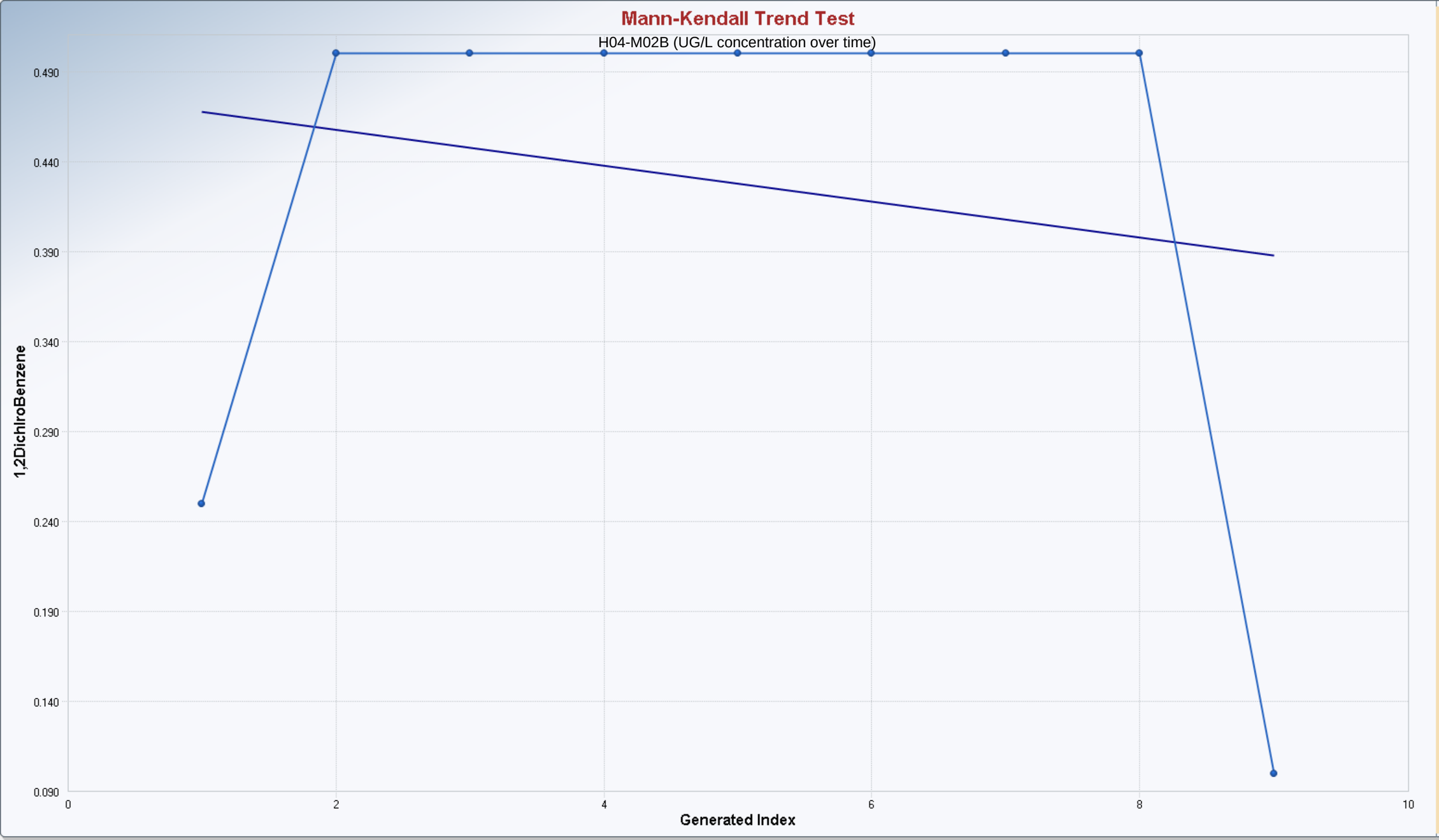
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	1.0190
M-K Test Value (S)	4
Tabulated p-value	0.1670
Approximate p-value	0.1541

OLS Regression Line (Blue)

OLS Regression Slope	0.3462
OLS Regression Intercept	-25.7697

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	0.0000
M-K Test Value (S)	-1
Tabulated p-value	0.5400
Approximate p-value	0.5000

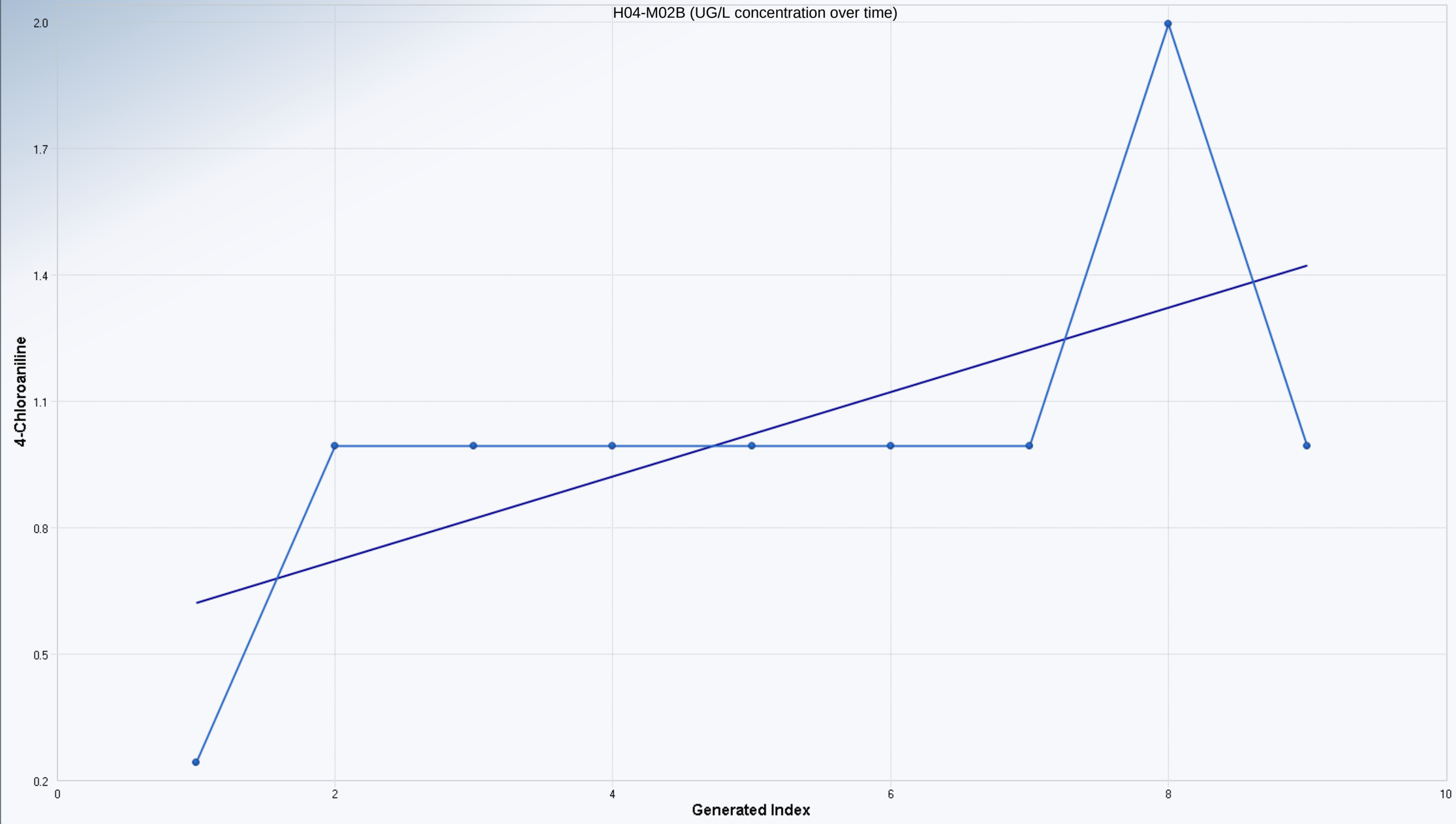
OLS Regression Line (Blue)

OLS Regression Slope	-0.0100
OLS Regression Intercept	0.4778

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H04-M02B (UG/L concentration over time)



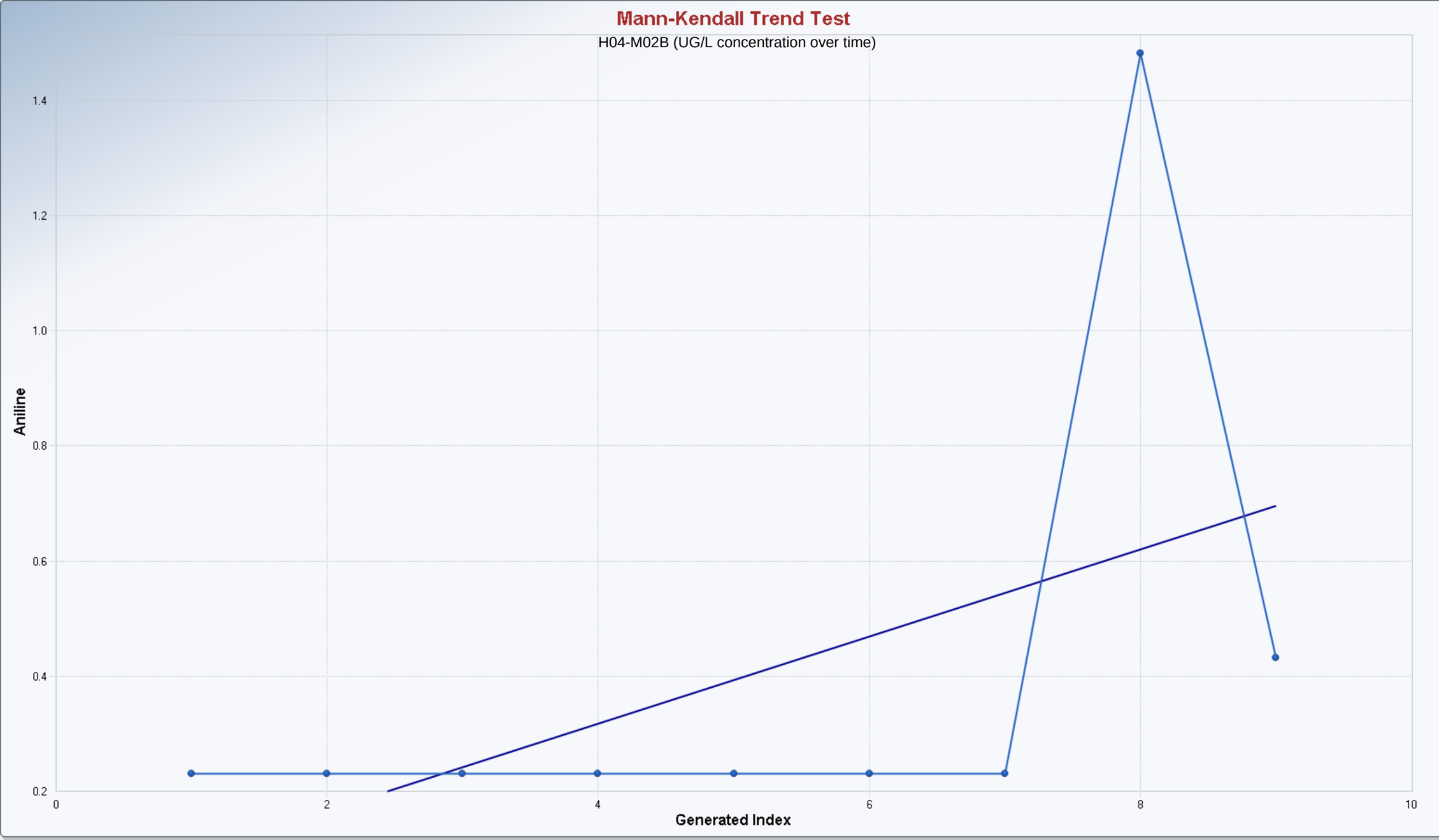
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	1.7381
M-K Test Value (S)	13
Tabulated p-value	0.1300
Approximate p-value	0.0411

OLS Regression Line (Blue)

OLS Regression Slope	0.1000
OLS Regression Intercept	0.5278

Insufficient statistical evidence of a significant trend at the specified level of significance.



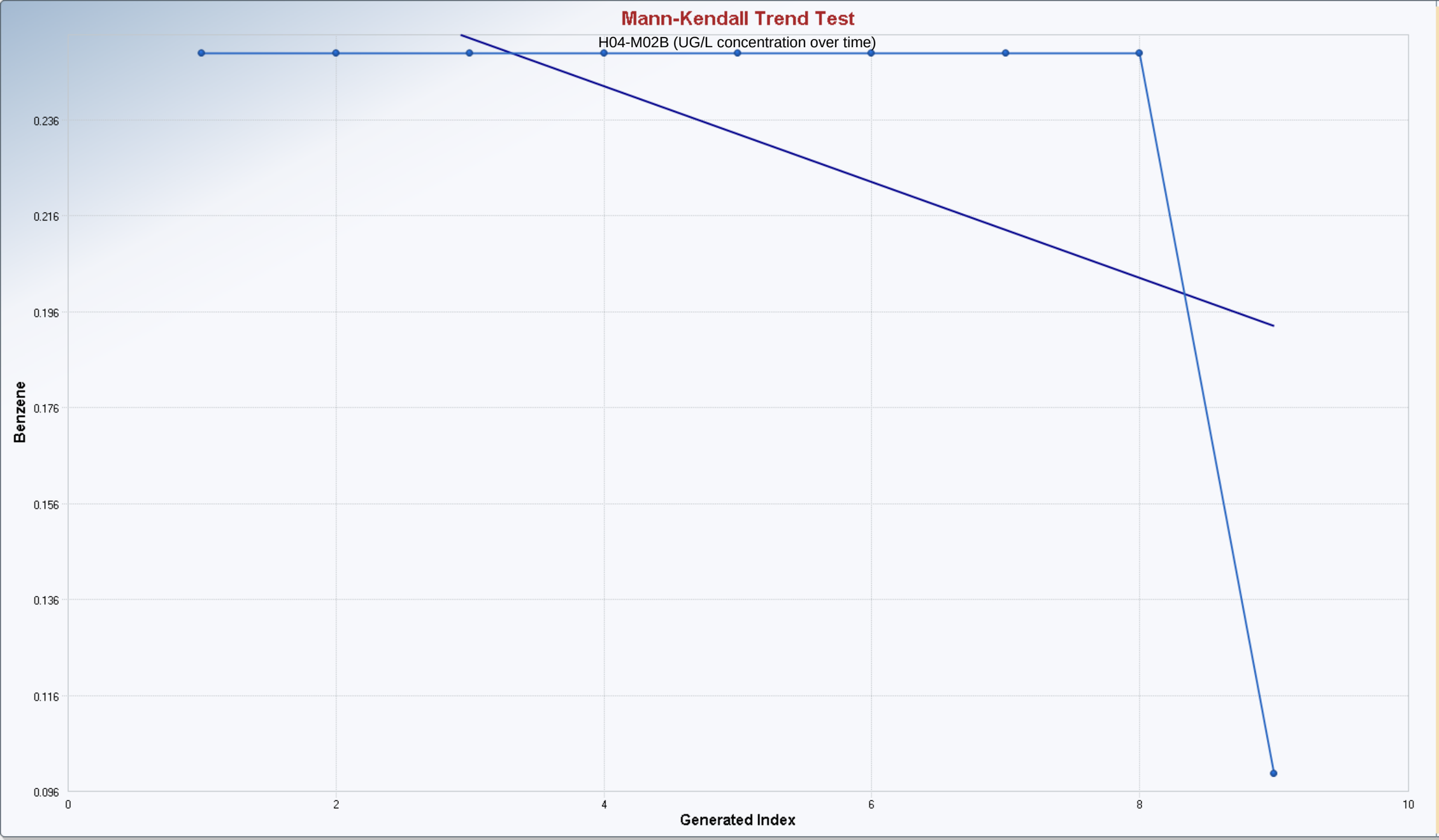
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	1.7381
M-K Test Value (S)	13
Tabulated p-value	0.1300
Approximate p-value	0.0411

OLS Regression Line (Blue)

OLS Regression Slope	0.0758
OLS Regression Intercept	0.0319

Insufficient statistical evidence of a significant trend at the specified level of significance.



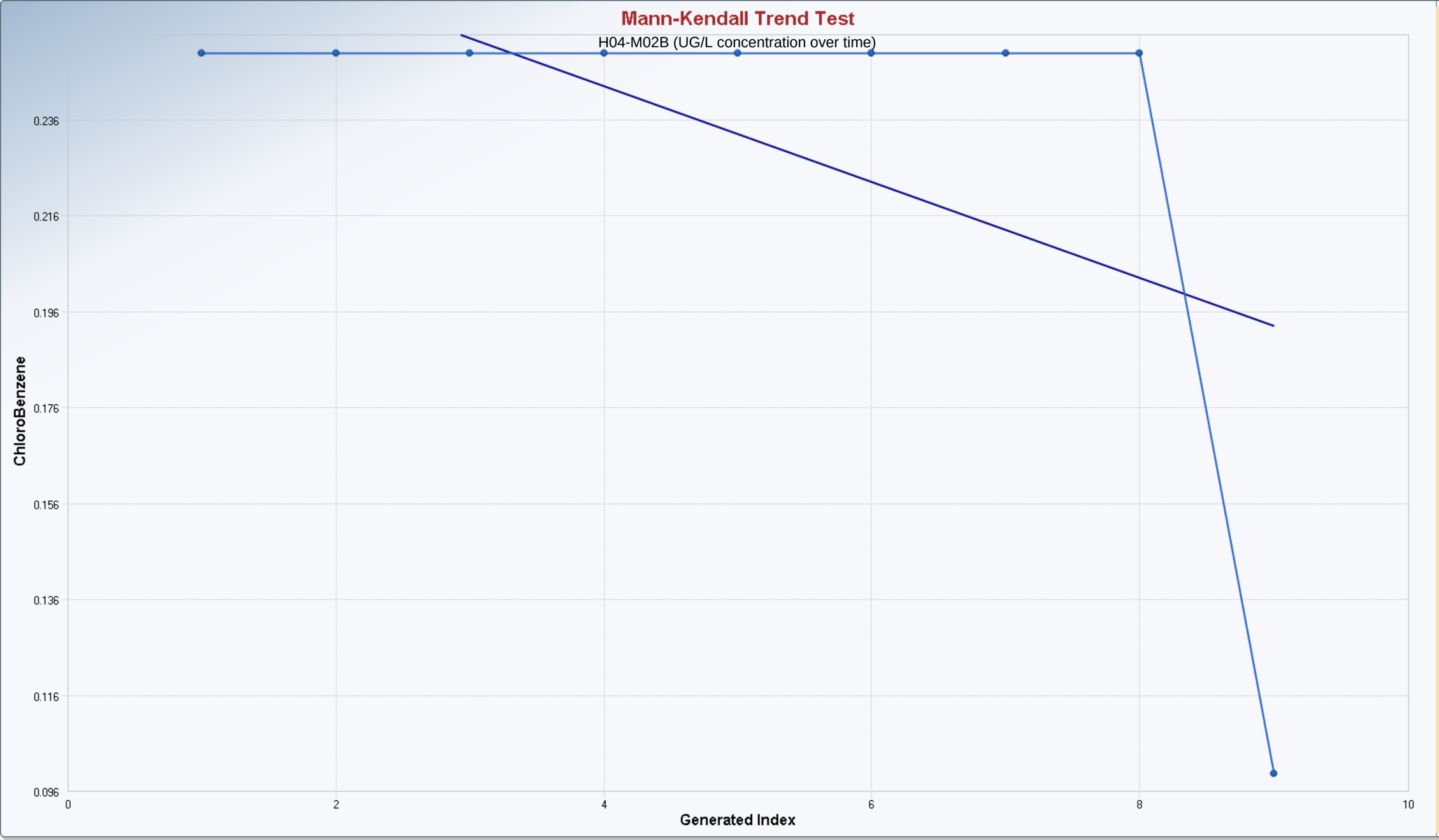
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.1640
Standardized Value of S	-1.3555
M-K Test Value (S)	-8
Tabulated p-value	0.2380
Approximate p-value	0.0876

OLS Regression Line (Blue)

OLS Regression Slope	-0.0100
OLS Regression Intercept	0.2833

Insufficient statistical evidence of a significant trend at the specified level of significance.



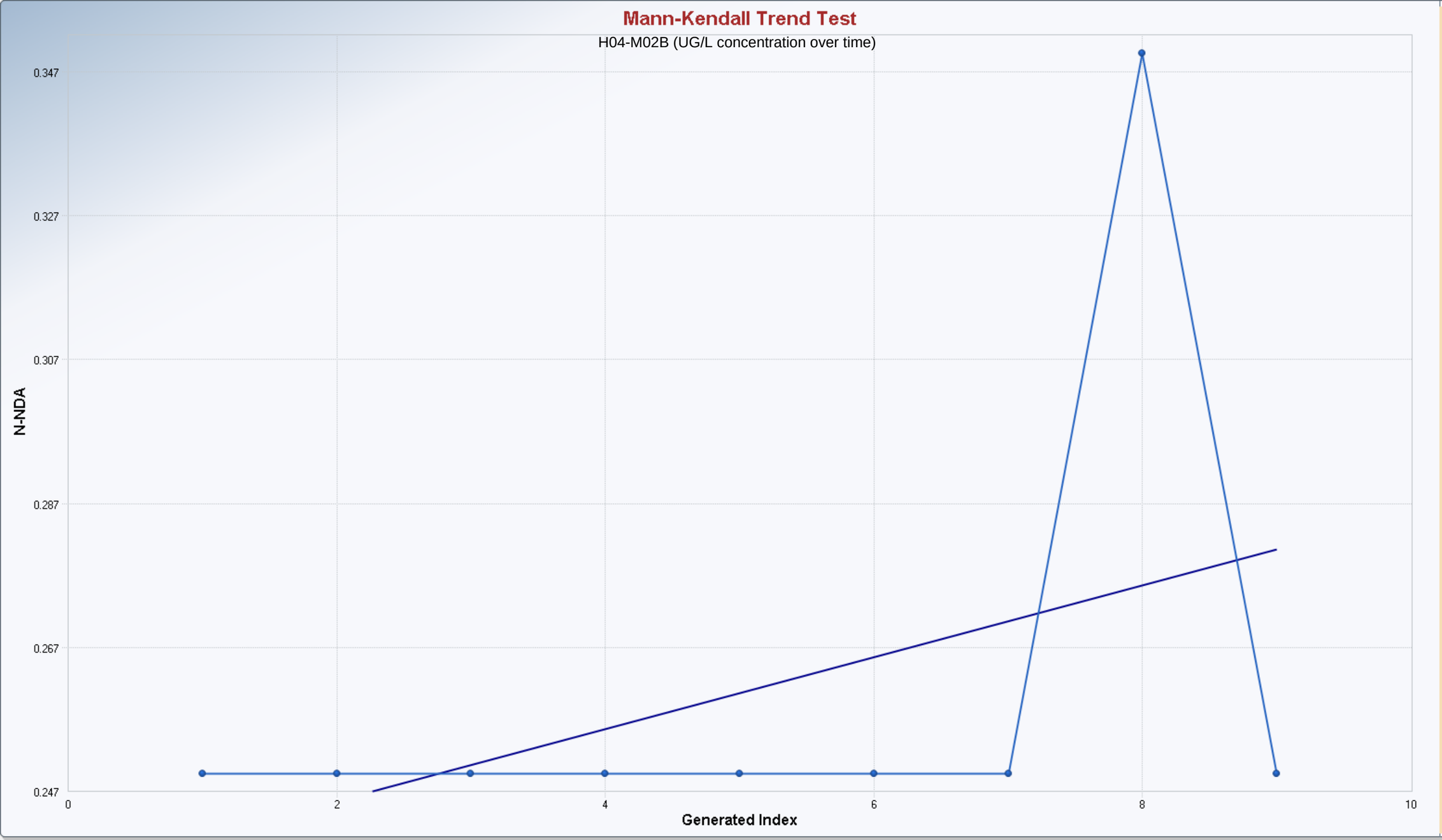
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.1640
Standardized Value of S	-1.3555
M-K Test Value (S)	-8
Tabulated p-value	0.2380
Approximate p-value	0.0876

OLS Regression Line (Blue)

OLS Regression Slope	-0.0100
OLS Regression Intercept	0.2833

Insufficient statistical evidence of a significant trend at the specified level of significance.



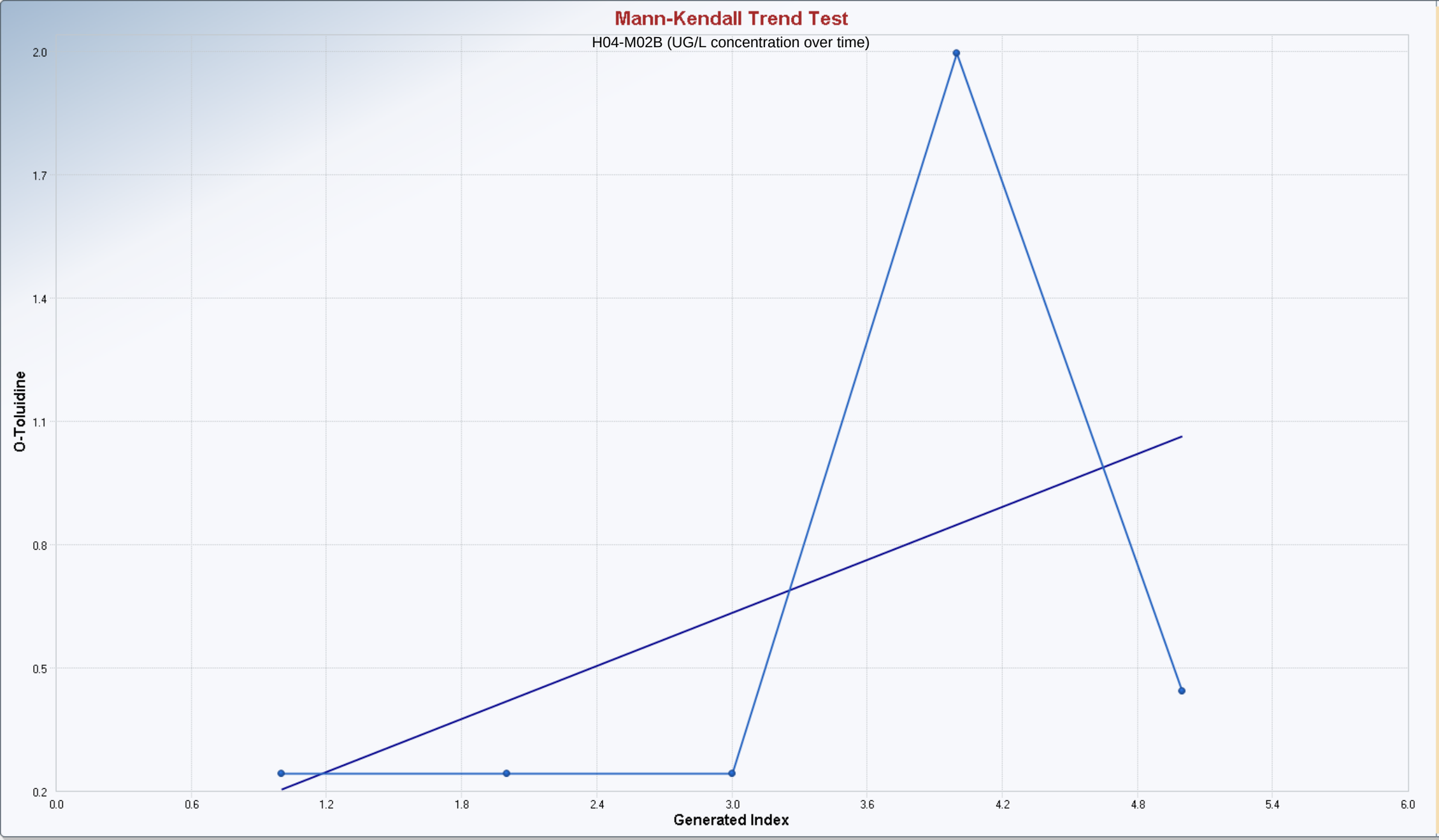
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.1640
Standardized Value of S	0.9682
M-K Test Value (S)	6
Tabulated p-value	0.3060
Approximate p-value	0.1665

OLS Regression Line (Blue)

OLS Regression Slope	0.0050
OLS Regression Intercept	0.2361

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	3.6056
Standardized Value of S	1.1094
M-K Test Value (S)	5
Tabulated p-value	0.2420
Approximate p-value	0.1336

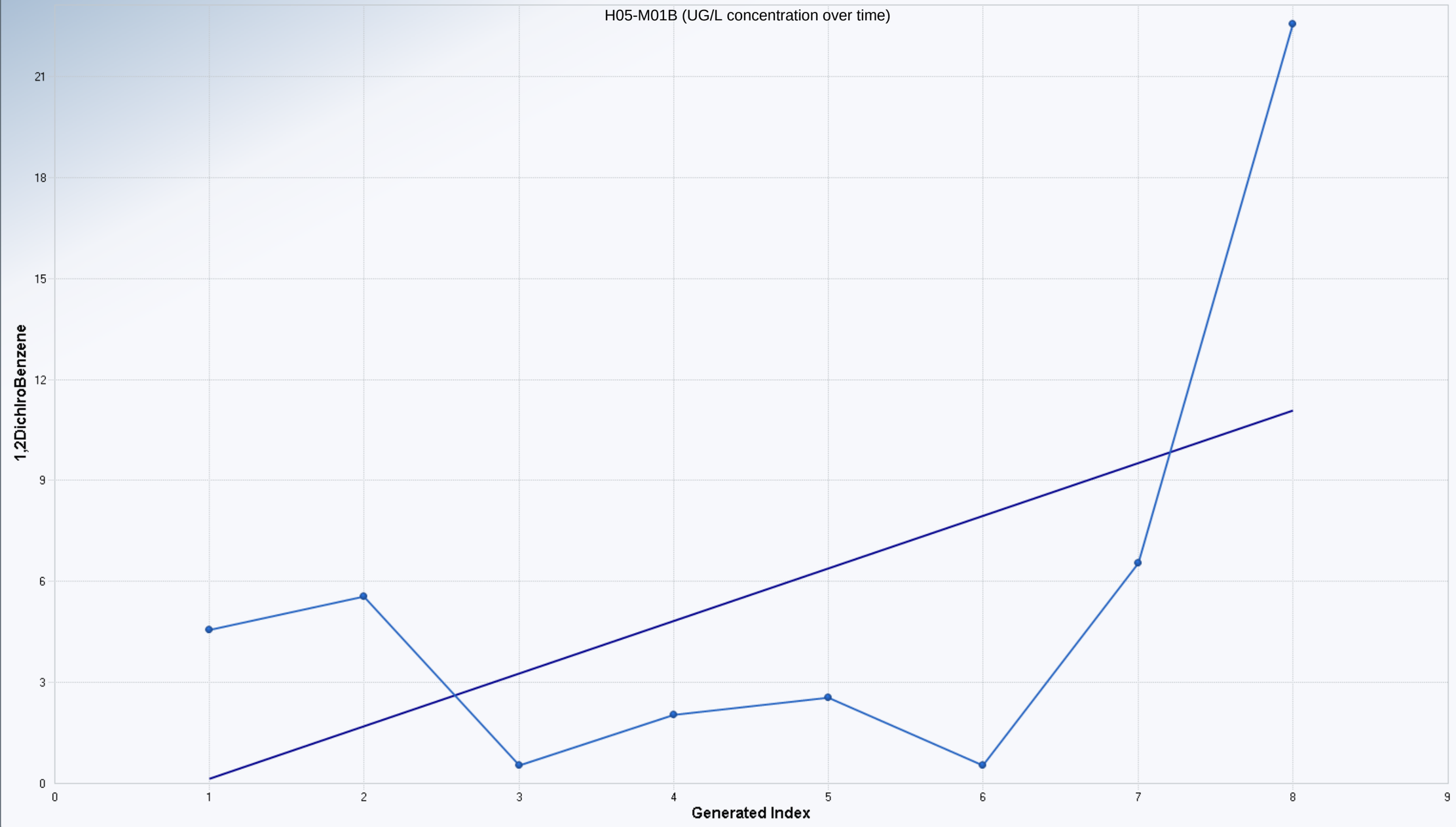
OLS Regression Line (Blue)

OLS Regression Slope	0.2150
OLS Regression Intercept	-0.0050

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M01B (UG/L concentration over time)



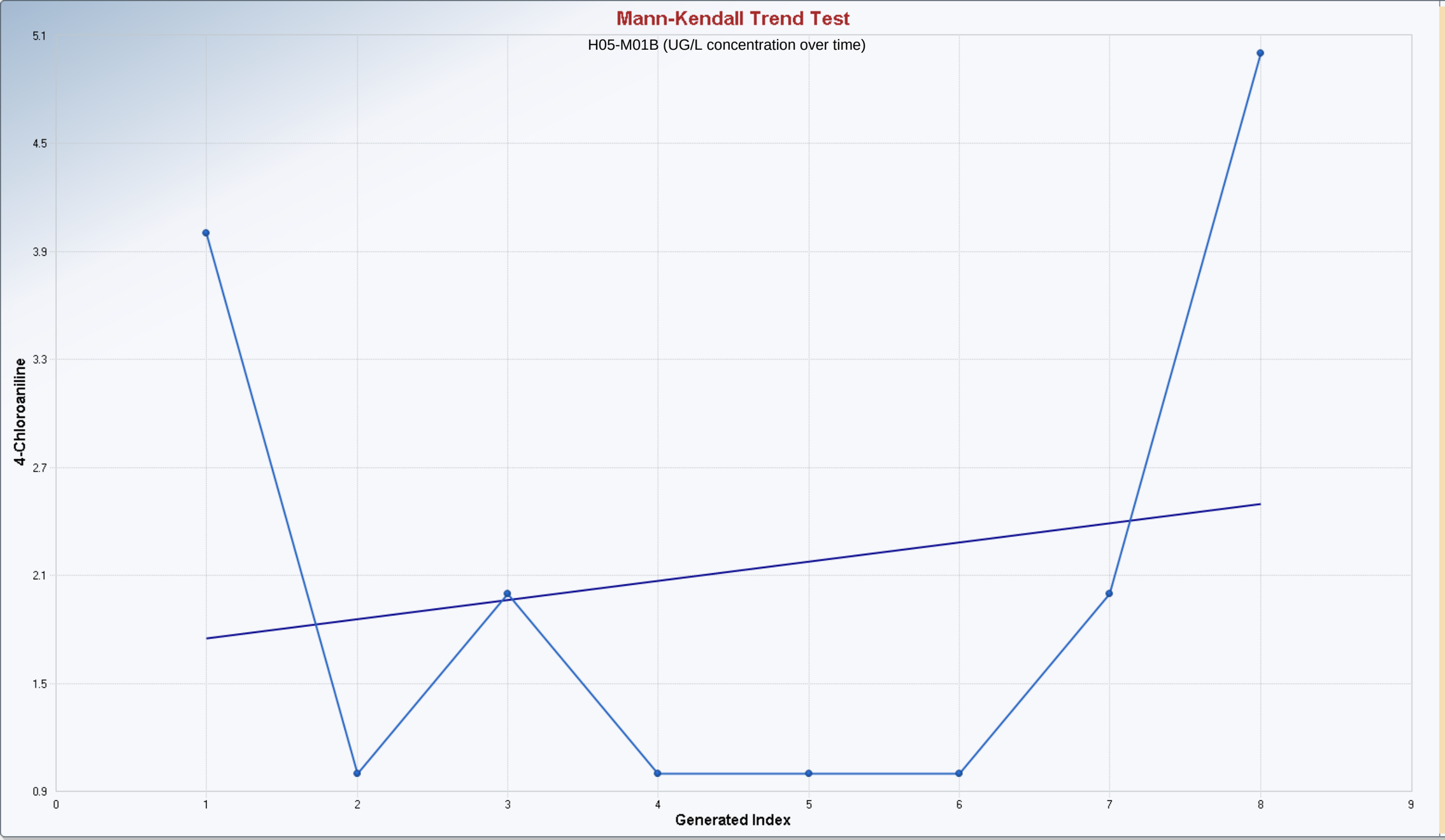
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.7481
M-K Test Value (S)	7
Tabulated p-value	0.2740
Approximate p-value	0.2272

OLS Regression Line (Blue)

OLS Regression Slope	1.5655
OLS Regression Intercept	-0.9821

Insufficient statistical evidence of a significant trend at the specified level of significance.



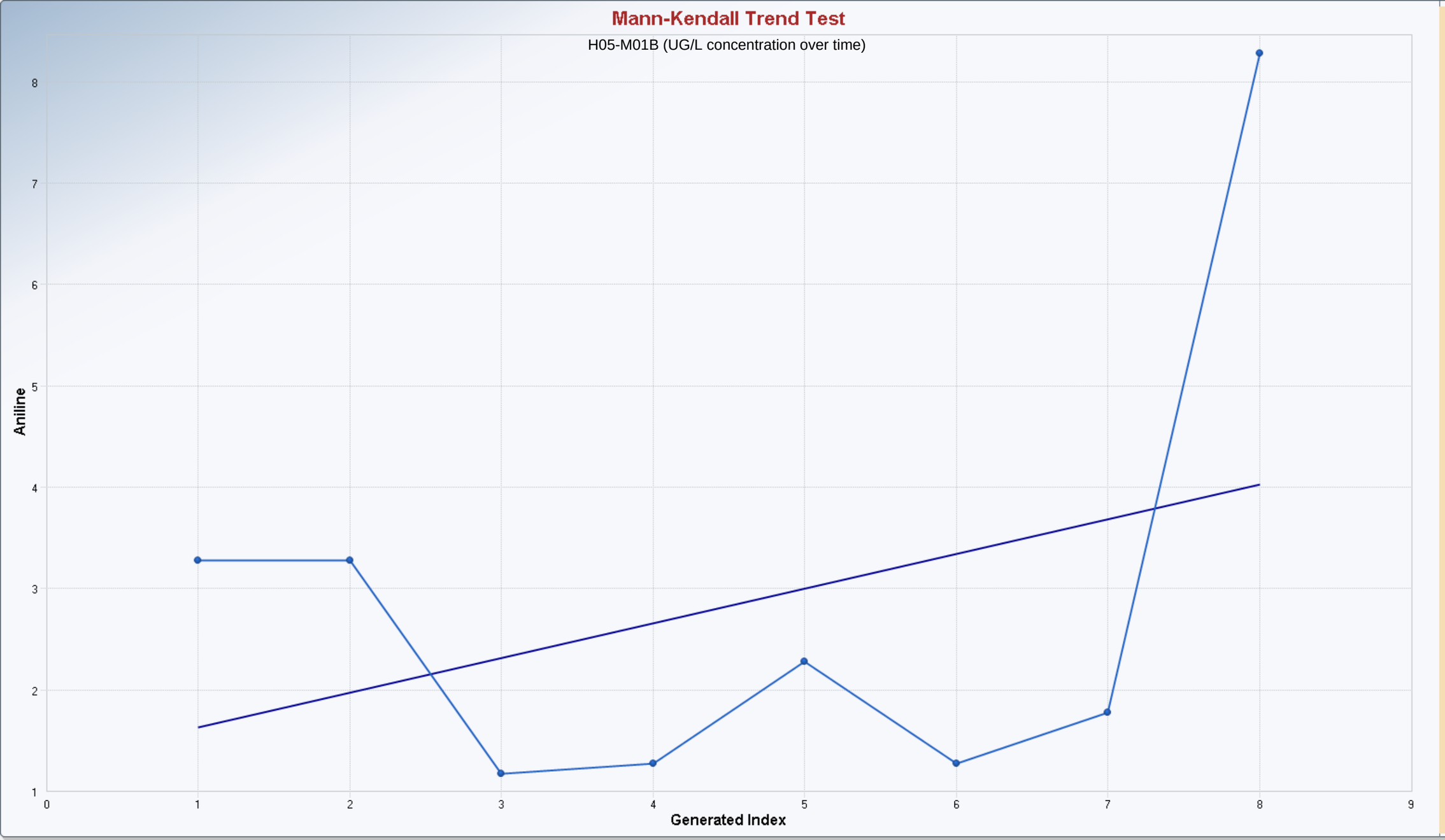
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.4610
Standardized Value of S	0.2681
M-K Test Value (S)	3
Tabulated p-value	0.4520
Approximate p-value	0.3943

OLS Regression Line (Blue)

OLS Regression Slope	0.1071
OLS Regression Intercept	1.6429

Insufficient statistical evidence of a significant trend at the specified level of significance.



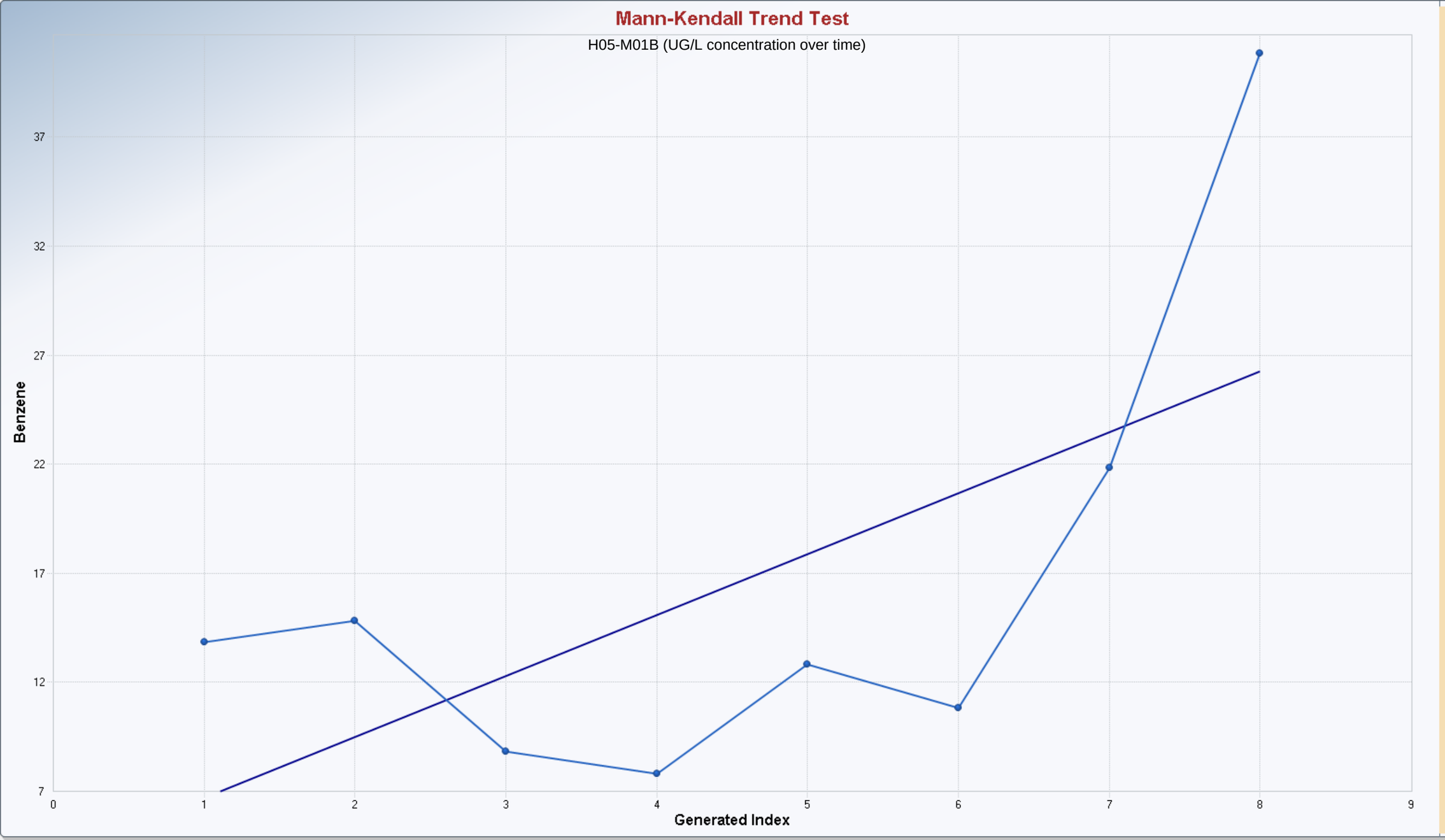
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.9582
Standardized Value of S	0.1257
M-K Test Value (S)	2
Tabulated p-value	0.4520
Approximate p-value	0.4500

OLS Regression Line (Blue)

OLS Regression Slope	0.3429
OLS Regression Intercept	1.0071

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	0.8660
M-K Test Value (S)	8
Tabulated p-value	0.1190
Approximate p-value	0.1932

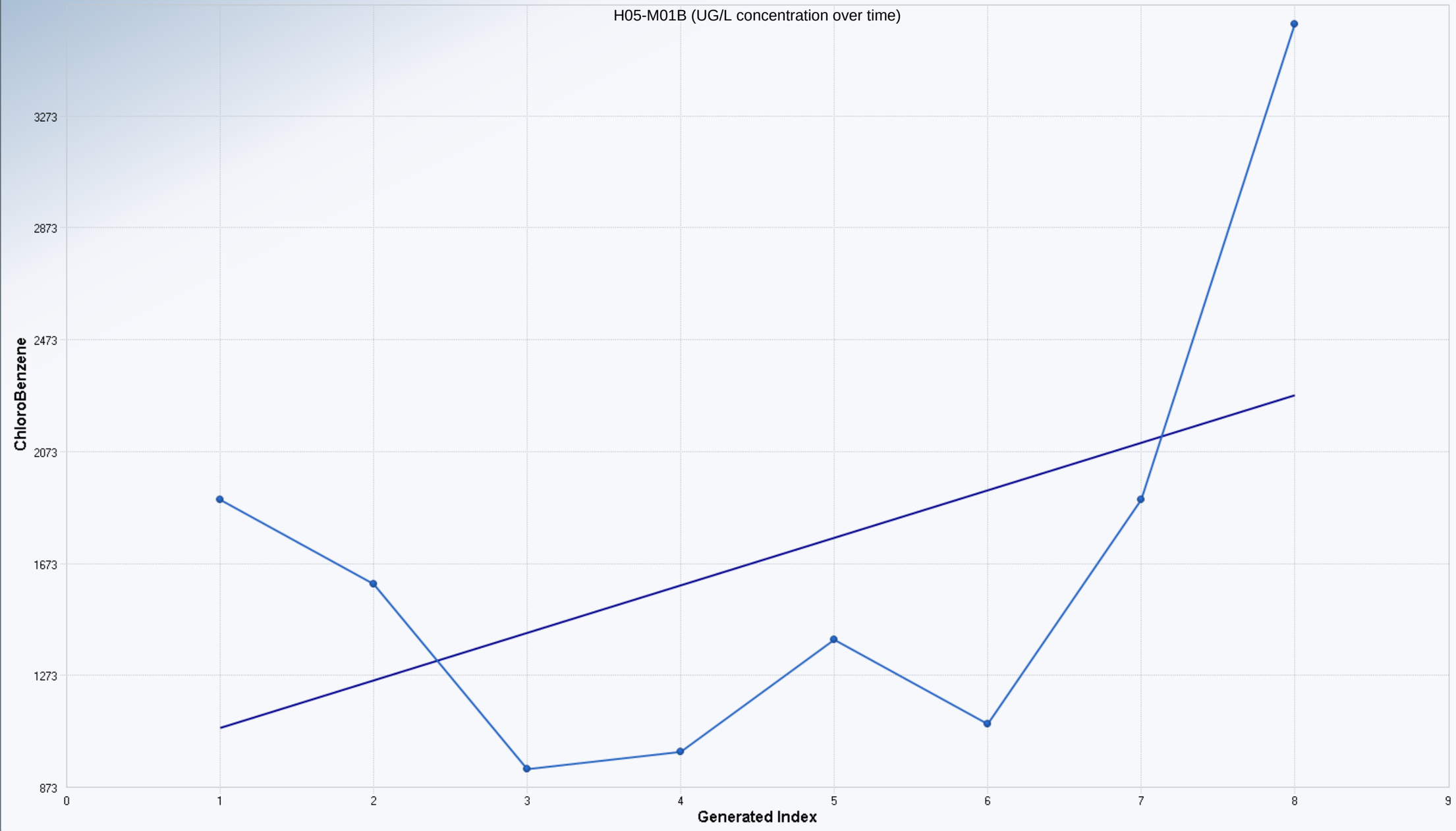
OLS Regression Line (Blue)

OLS Regression Slope	2.7976
OLS Regression Intercept	4.0357

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M01B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.7481
M-K Test Value (S)	7
Tabulated p-value	0.2740
Approximate p-value	0.2272

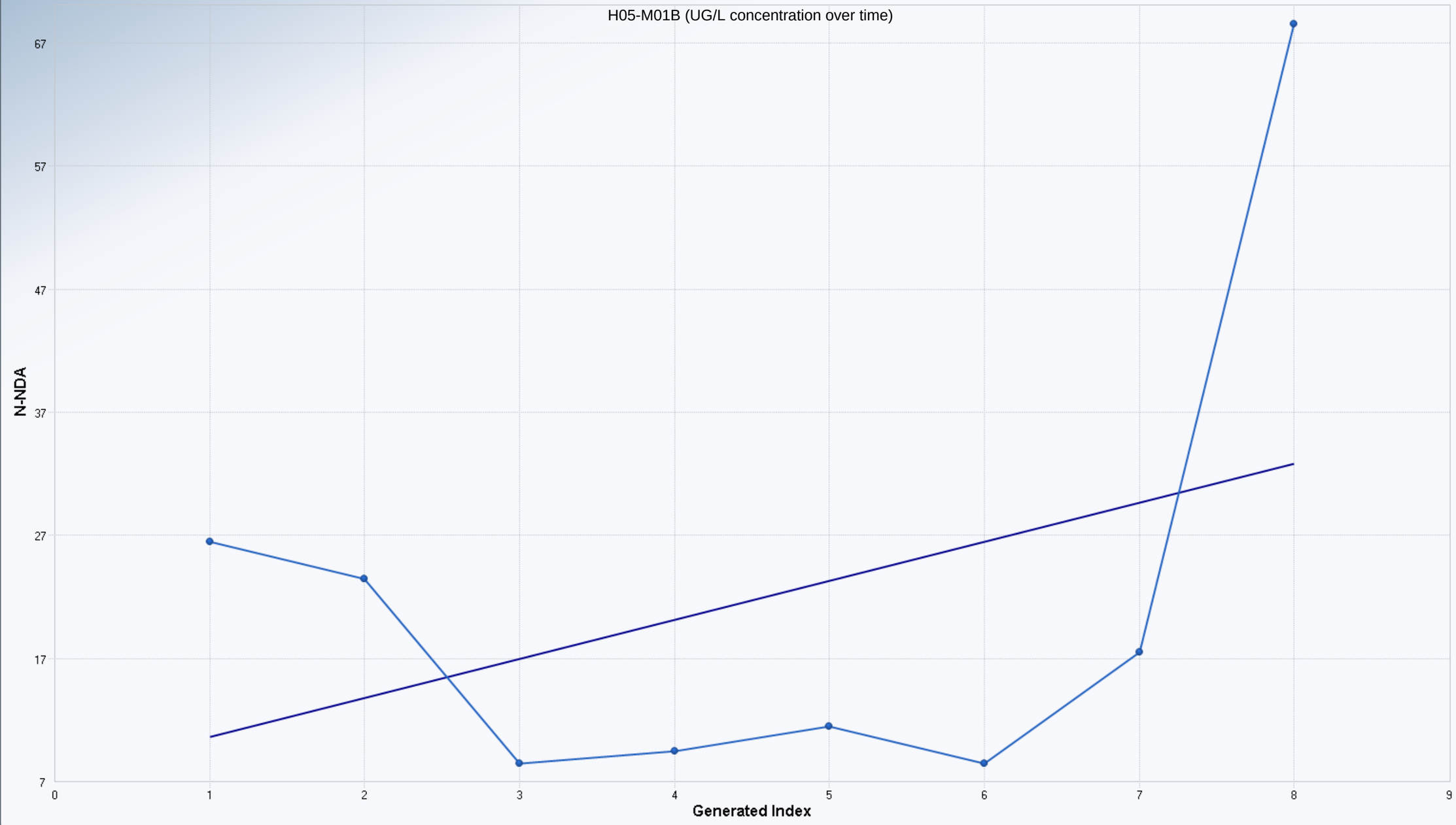
OLS Regression Line (Blue)

OLS Regression Slope	170.0000
OLS Regression Intercept	915.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M01B (UG/L concentration over time)



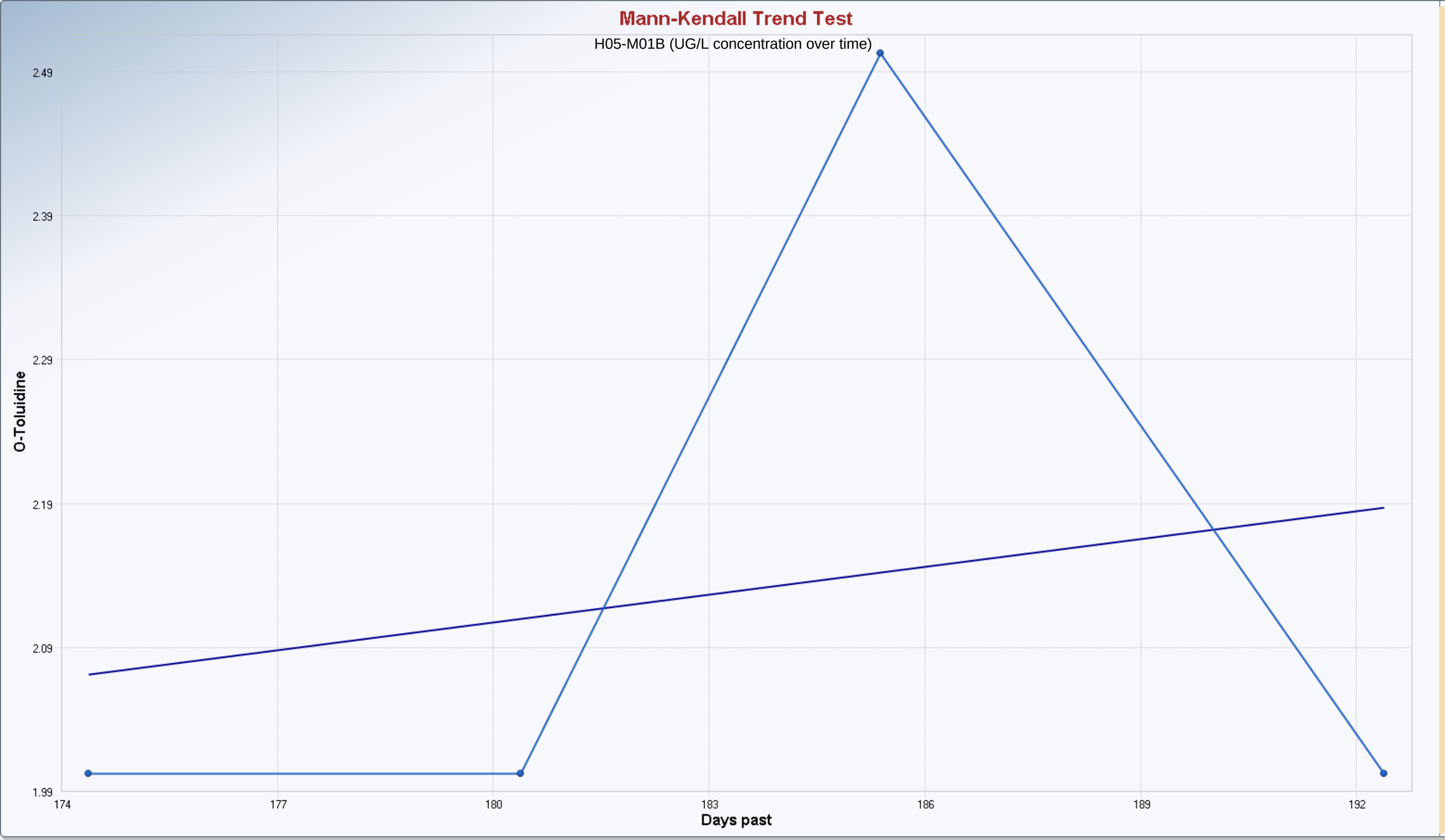
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5480
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	3.1667
OLS Regression Intercept	8.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.



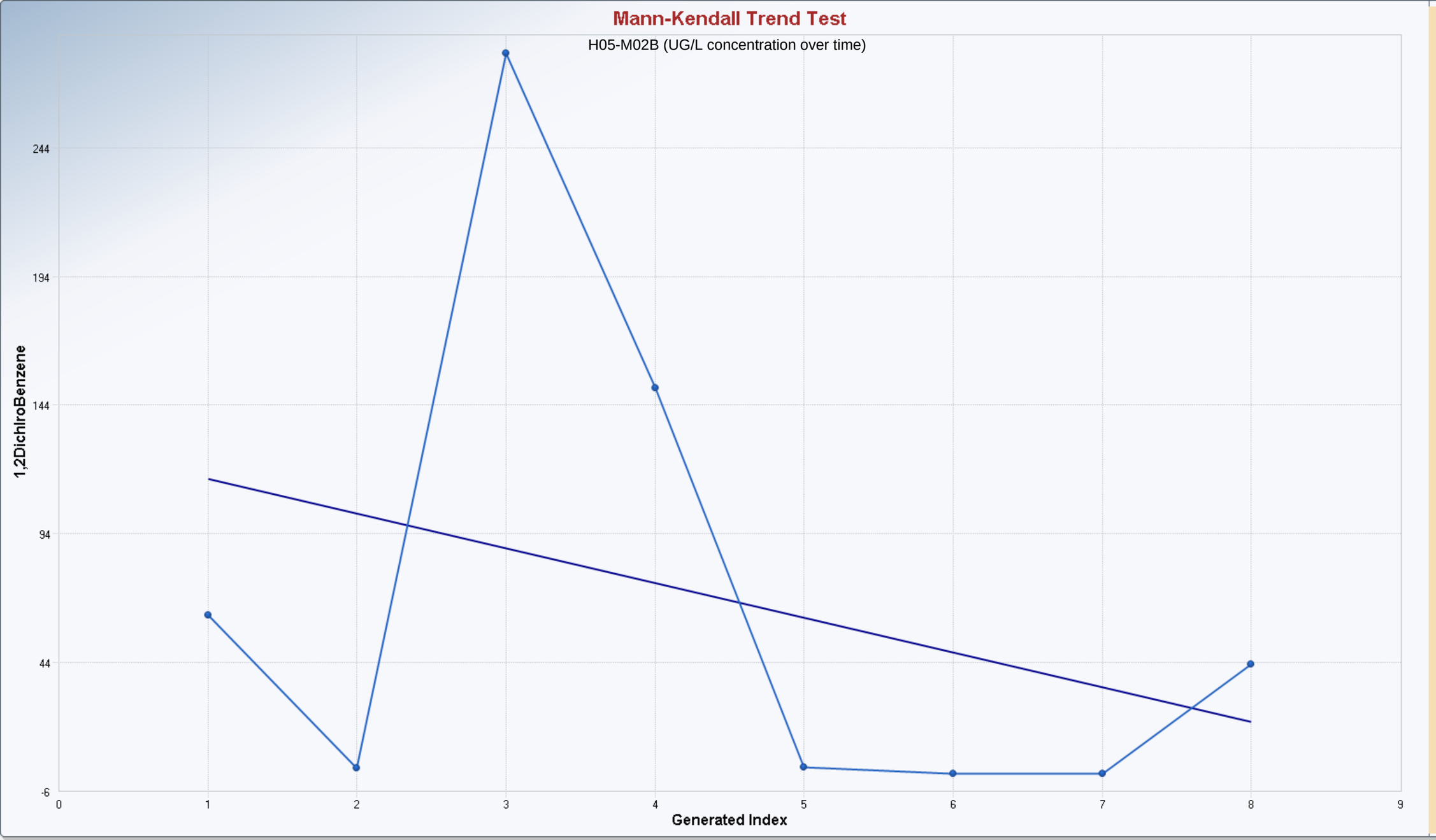
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.2361
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.6250
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	0.0064
OLS Regression Intercept	0.9485

Insufficient statistical evidence of a significant trend at the specified level of significance.



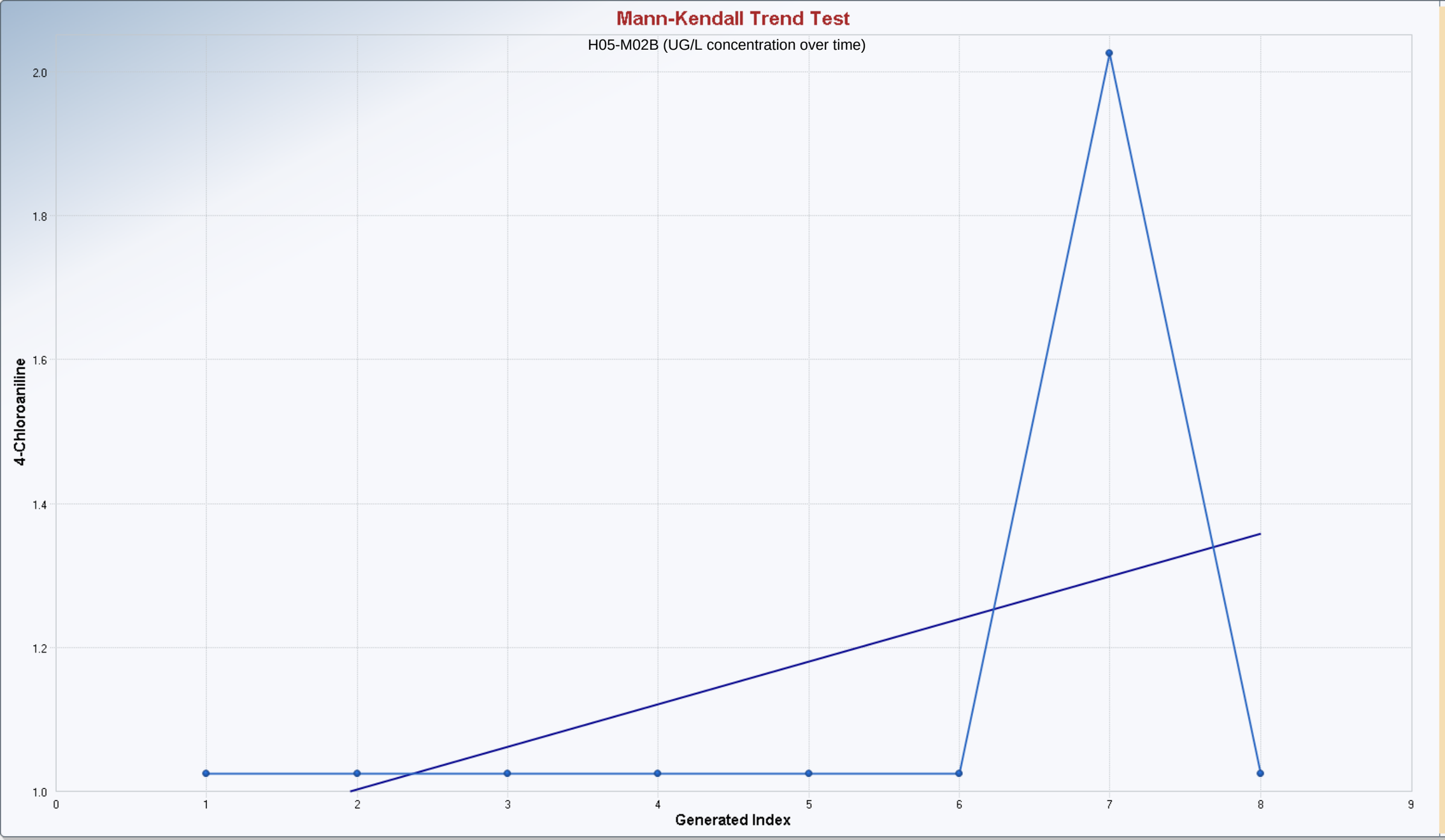
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-0.9974
M-K Test Value (S)	-9
Tabulated p-value	0.1190
Approximate p-value	0.1593

OLS Regression Line (Blue)

OLS Regression Slope	-13.4345
OLS Regression Intercept	128.1429

Insufficient statistical evidence of a significant trend at the specified level of significance.



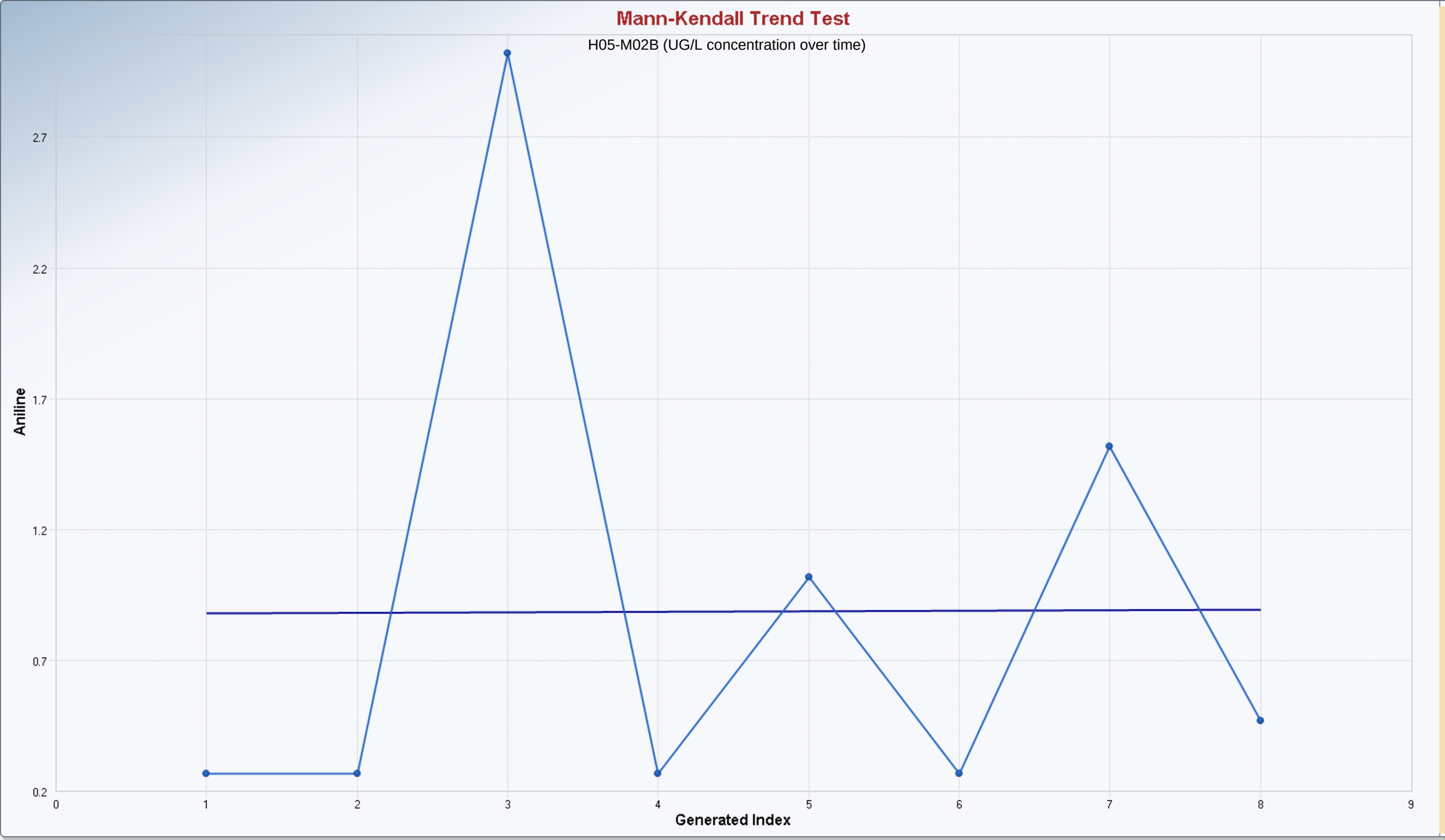
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.5826
Standardized Value of S	0.8729
M-K Test Value (S)	5
Tabulated p-value	0.3600
Approximate p-value	0.1914

OLS Regression Line (Blue)

OLS Regression Slope	0.0595
OLS Regression Intercept	0.8571

Insufficient statistical evidence of a significant trend at the specified level of significance.



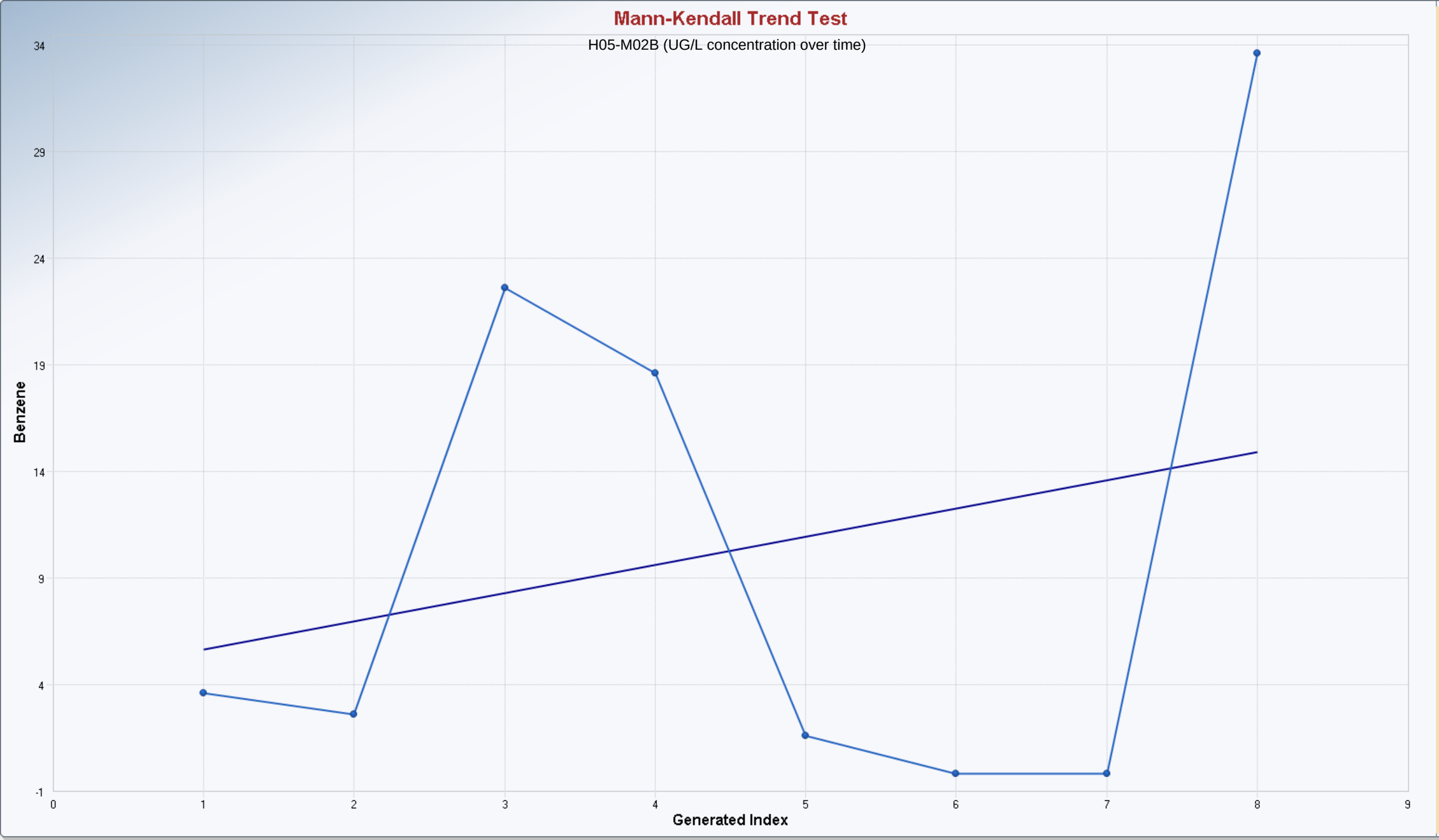
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.5277
Standardized Value of S	0.6642
M-K Test Value (S)	6
Tabulated p-value	0.2740
Approximate p-value	0.2533

OLS Regression Line (Blue)

OLS Regression Slope	0.0018
OLS Regression Intercept	0.8607

Insufficient statistical evidence of a significant trend at the specified level of significance.



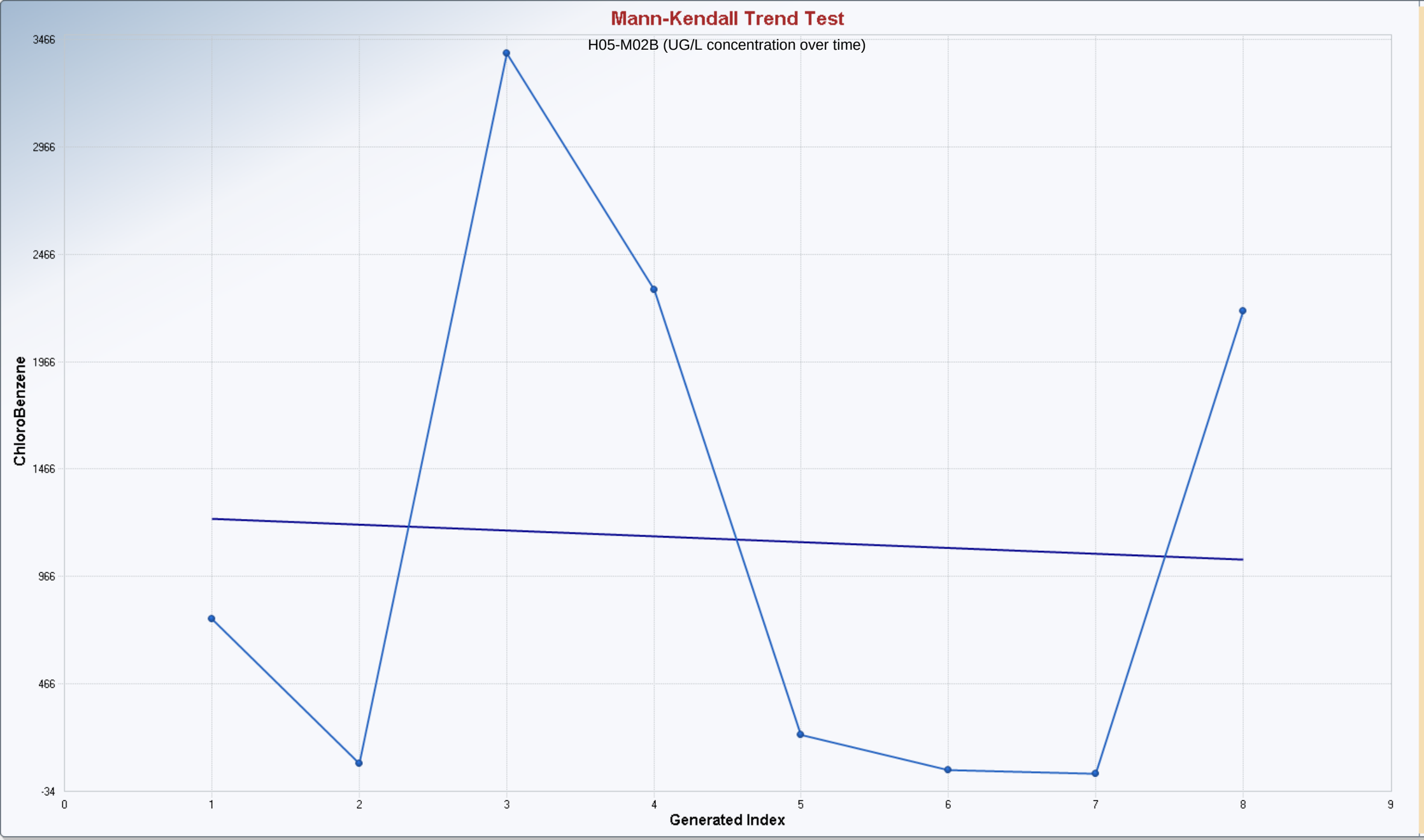
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-0.4987
M-K Test Value (S)	-5
Tabulated p-value	0.3600
Approximate p-value	0.3090

OLS Regression Line (Blue)

OLS Regression Slope	1.3214
OLS Regression Intercept	4.7411

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-0.8660
M-K Test Value (S)	-8
Tabulated p-value	0.1190
Approximate p-value	0.1932

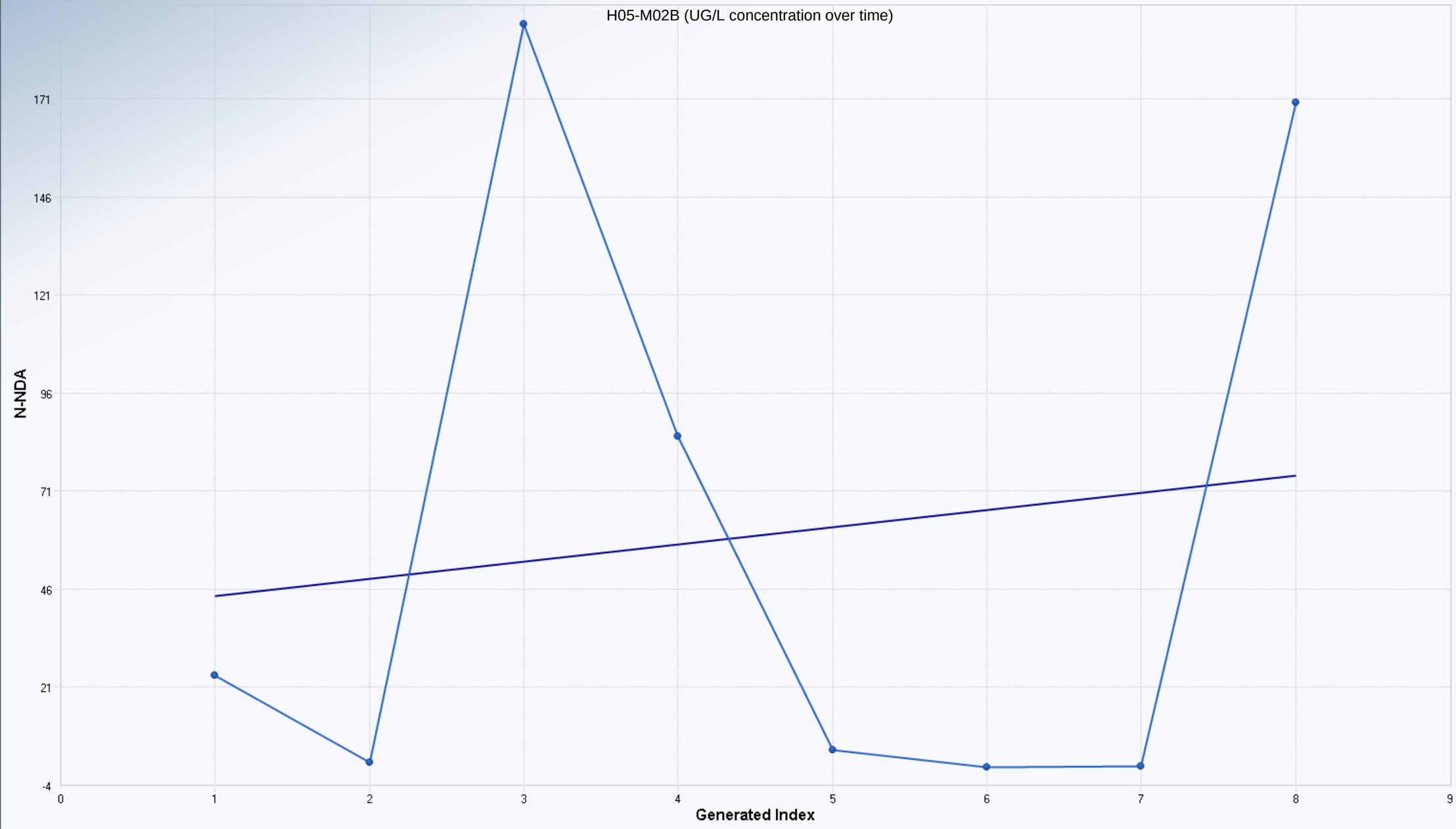
OLS Regression Line (Blue)

OLS Regression Slope	-27.2381
OLS Regression Intercept	1,261.0714

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M02B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-0.3712
M-K Test Value (S)	-4
Tabulated p-value	0.3600
Approximate p-value	0.3553

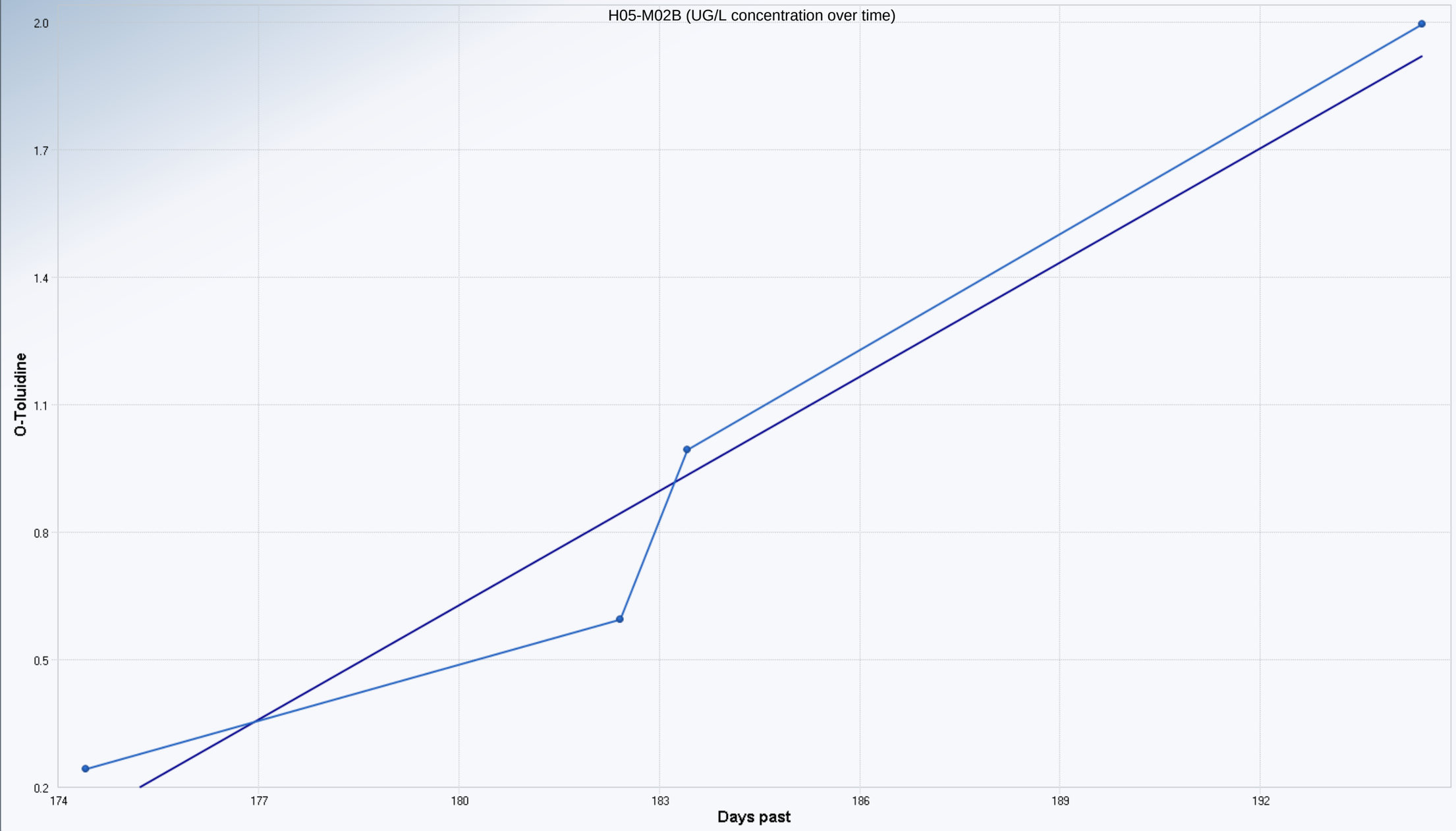
OLS Regression Line (Blue)

OLS Regression Slope	4.3976
OLS Regression Intercept	39.9357

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M02B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	1.6984
M-K Test Value (S)	6
Tabulated p-value	0.0420
Approximate p-value	0.0447

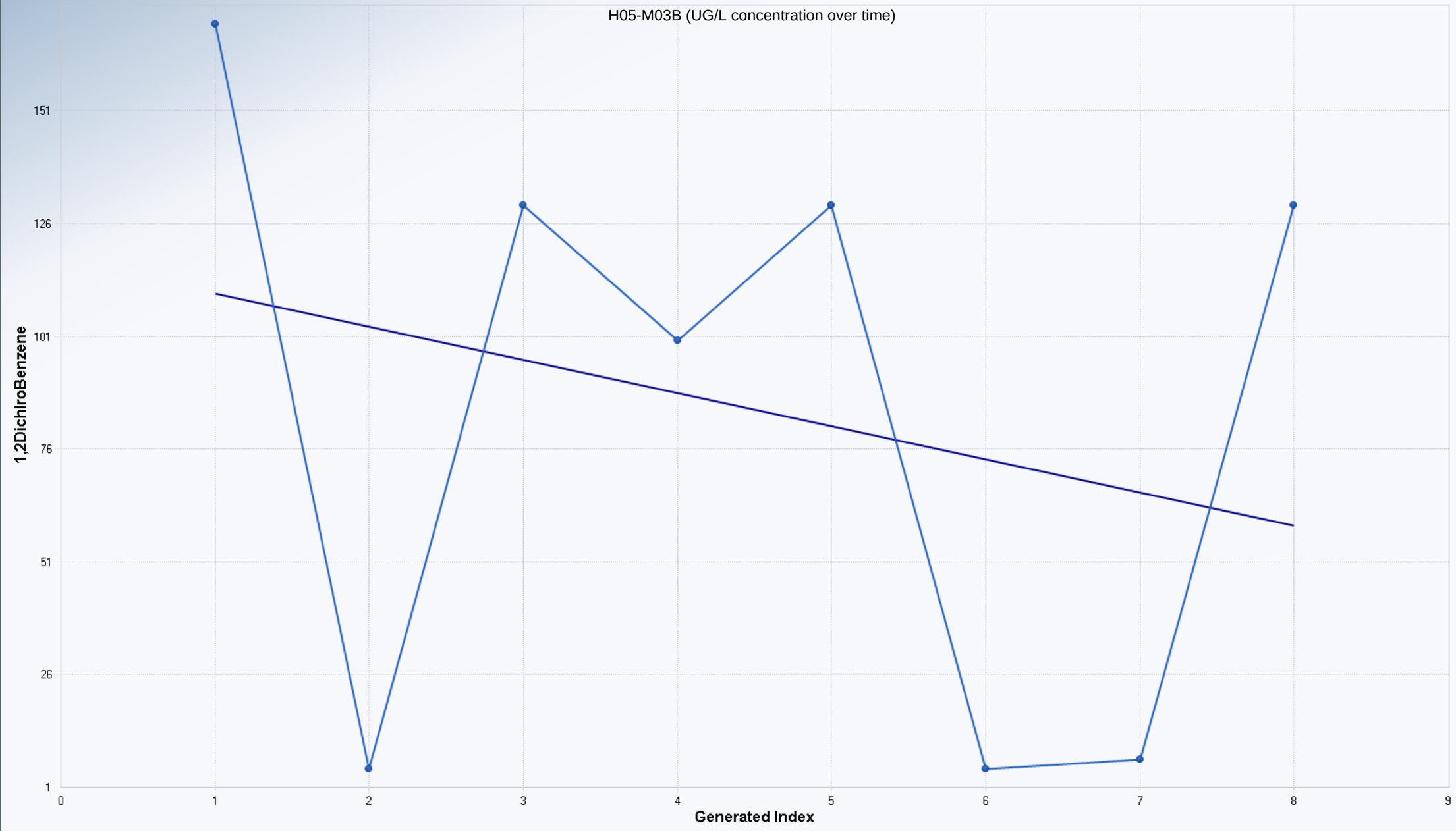
OLS Regression Line (Blue)

OLS Regression Slope	0.0897
OLS Regression Intercept	-15.4758

Statistically significant evidence of an increasing trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M03B (UG/L concentration over time)



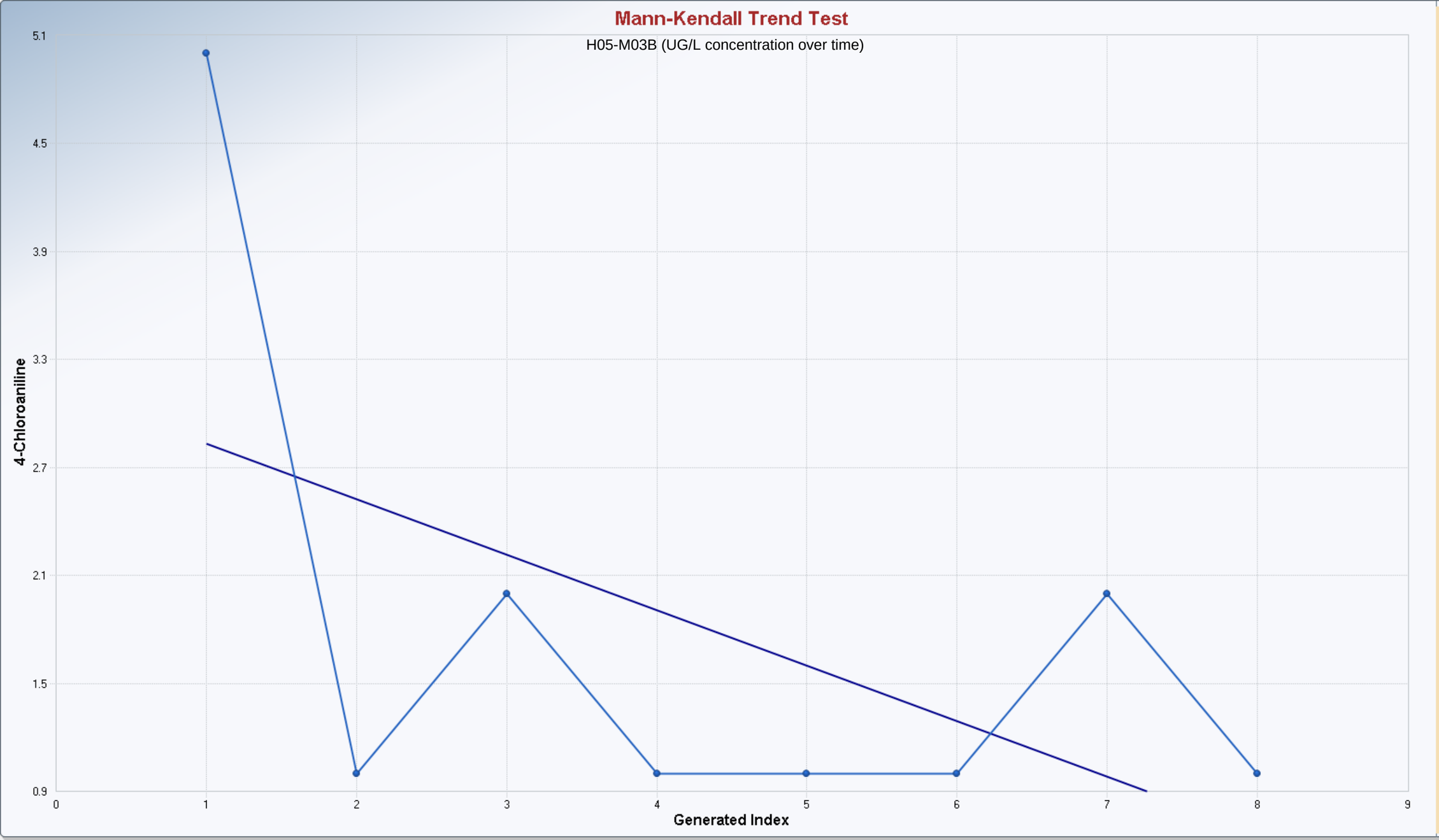
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.7889
Standardized Value of S	-0.3852
M-K Test Value (S)	-4
Tabulated p-value	0.3600
Approximate p-value	0.3501

OLS Regression Line (Blue)

OLS Regression Slope	-7.3214
OLS Regression Intercept	117.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



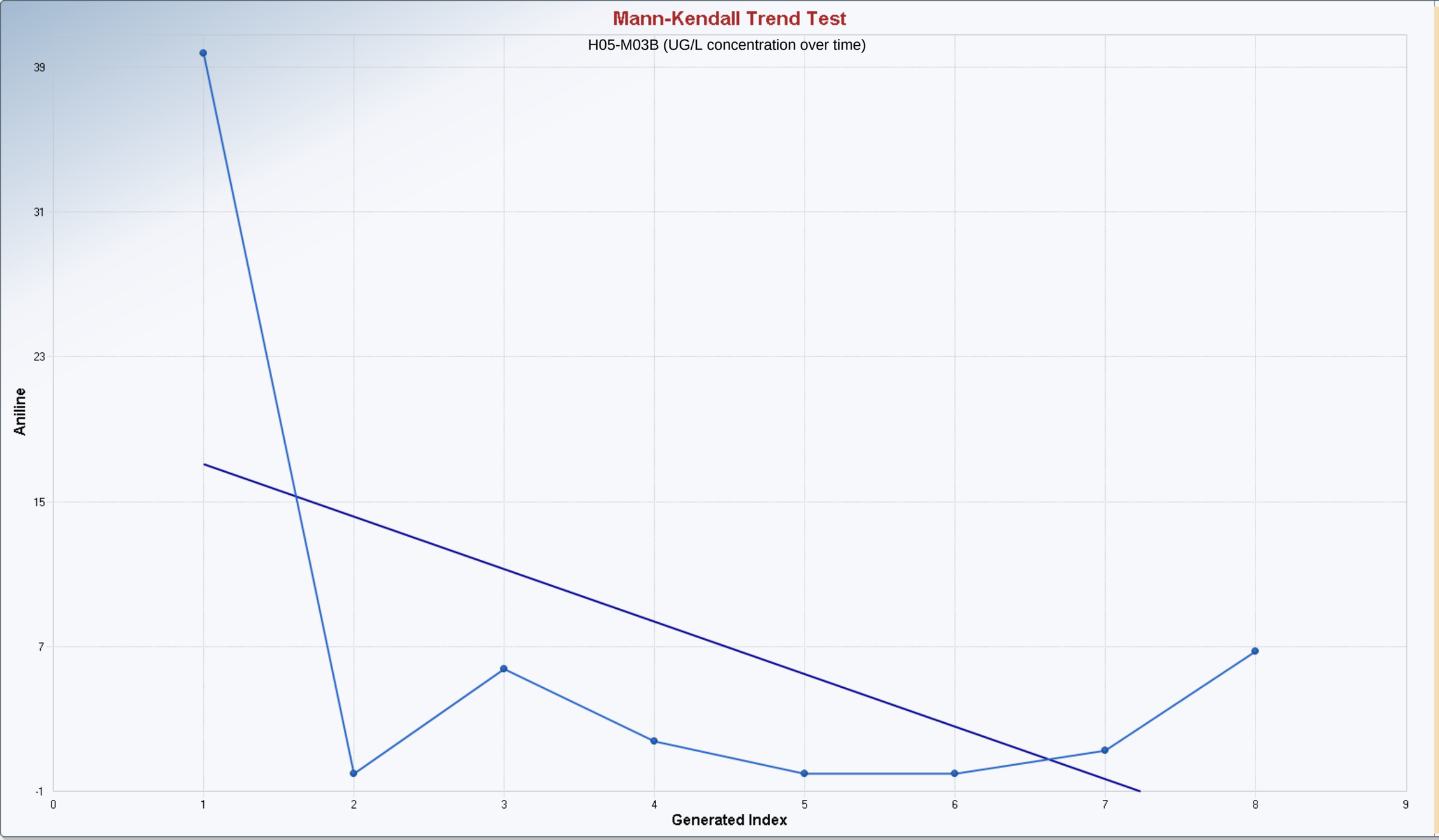
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	-0.8690
M-K Test Value (S)	-7
Tabulated p-value	0.2740
Approximate p-value	0.1924

OLS Regression Line (Blue)

OLS Regression Slope	-0.3095
OLS Regression Intercept	3.1429

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.8528
Standardized Value of S	-0.2547
M-K Test Value (S)	-3
Tabulated p-value	0.4520
Approximate p-value	0.3995

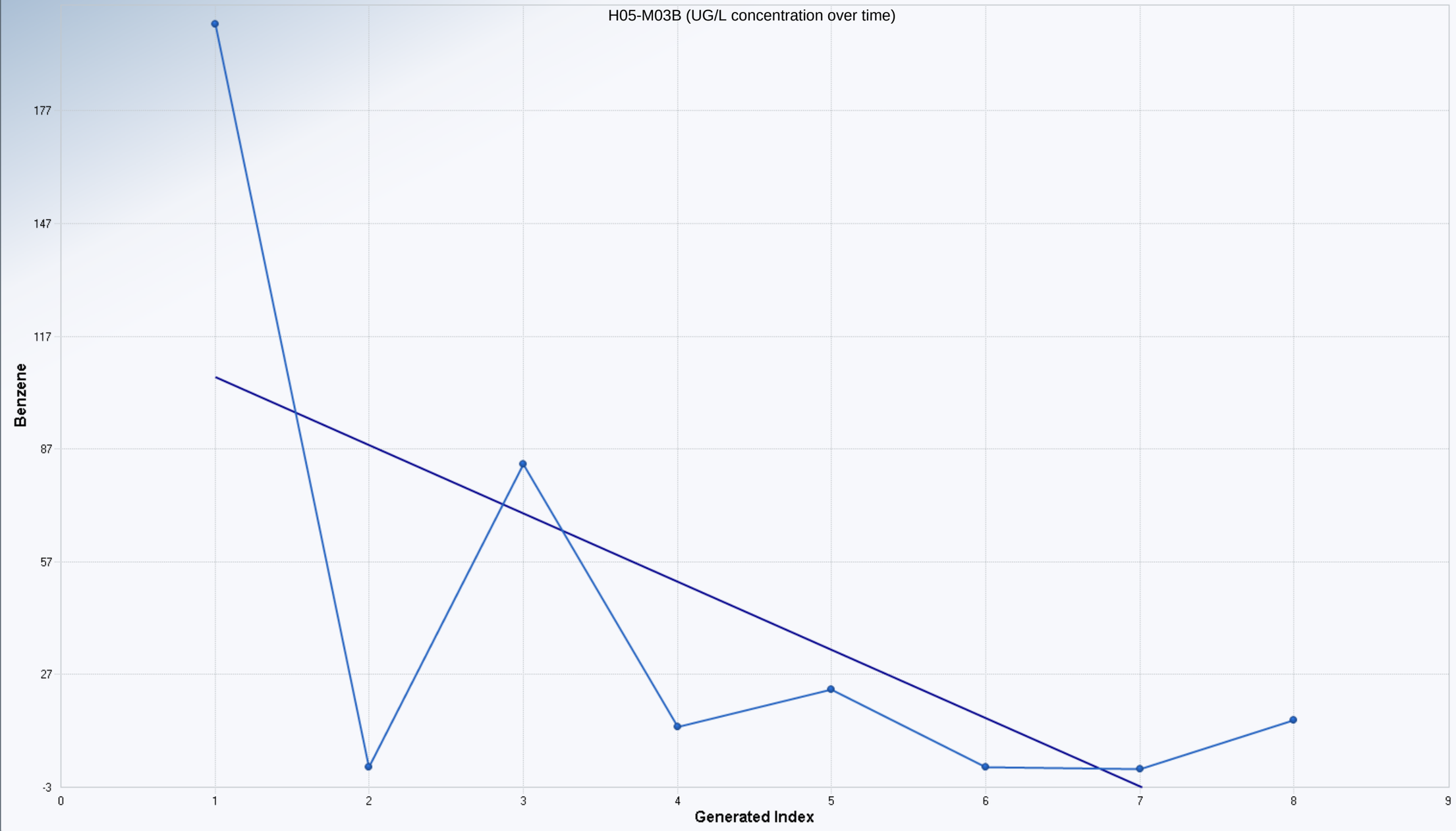
OLS Regression Line (Blue)

OLS Regression Slope	-2.9018
OLS Regression Intercept	20.2143

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M03B (UG/L concentration over time)



Mann-Kendall Trend Analysis

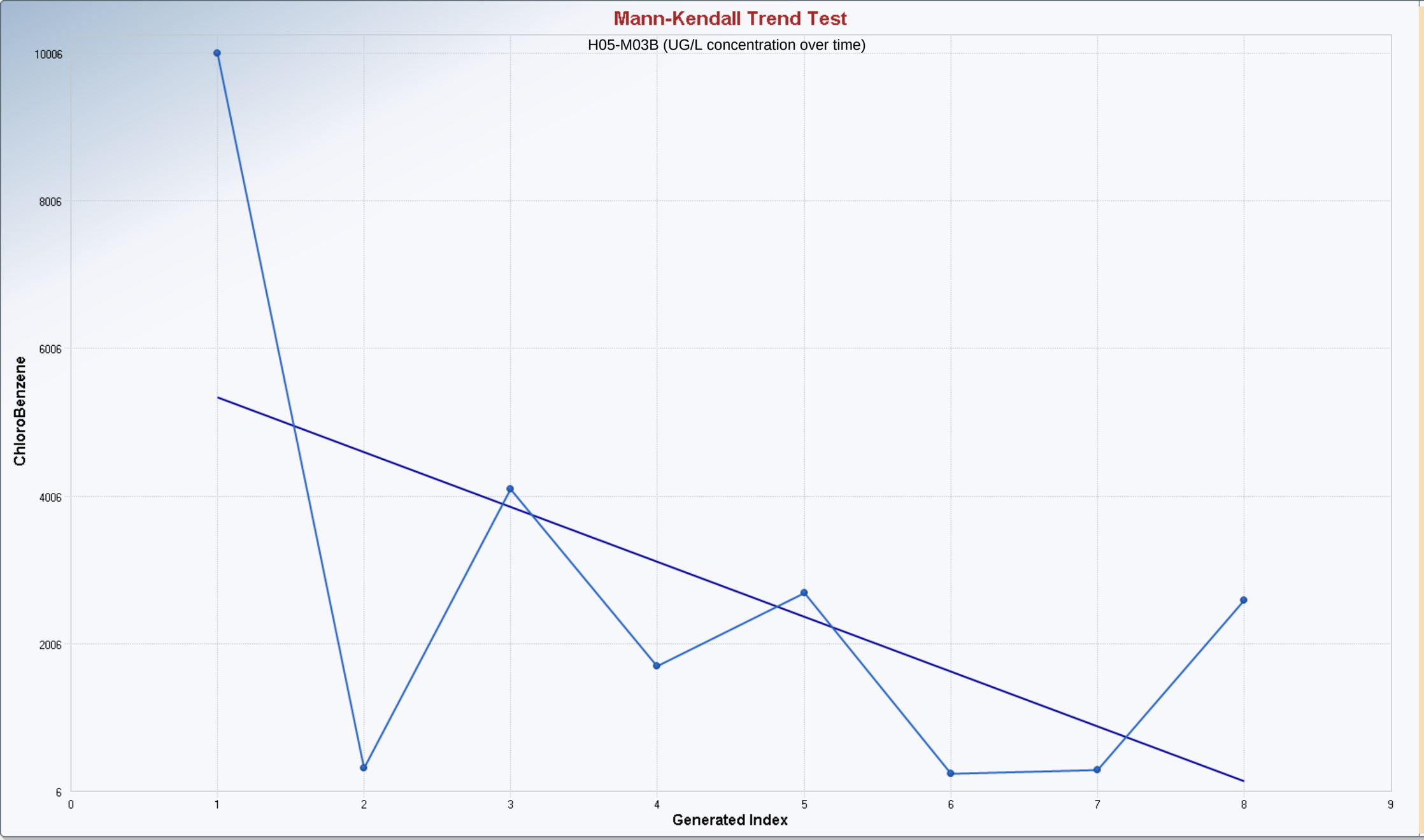
n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-1.2468
M-K Test Value (S)	-11
Tabulated p-value	0.1380
Approximate p-value	0.1062

OLS Regression Line (Blue)

OLS Regression Slope	-18.2024
OLS Regression Intercept	124.5357

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



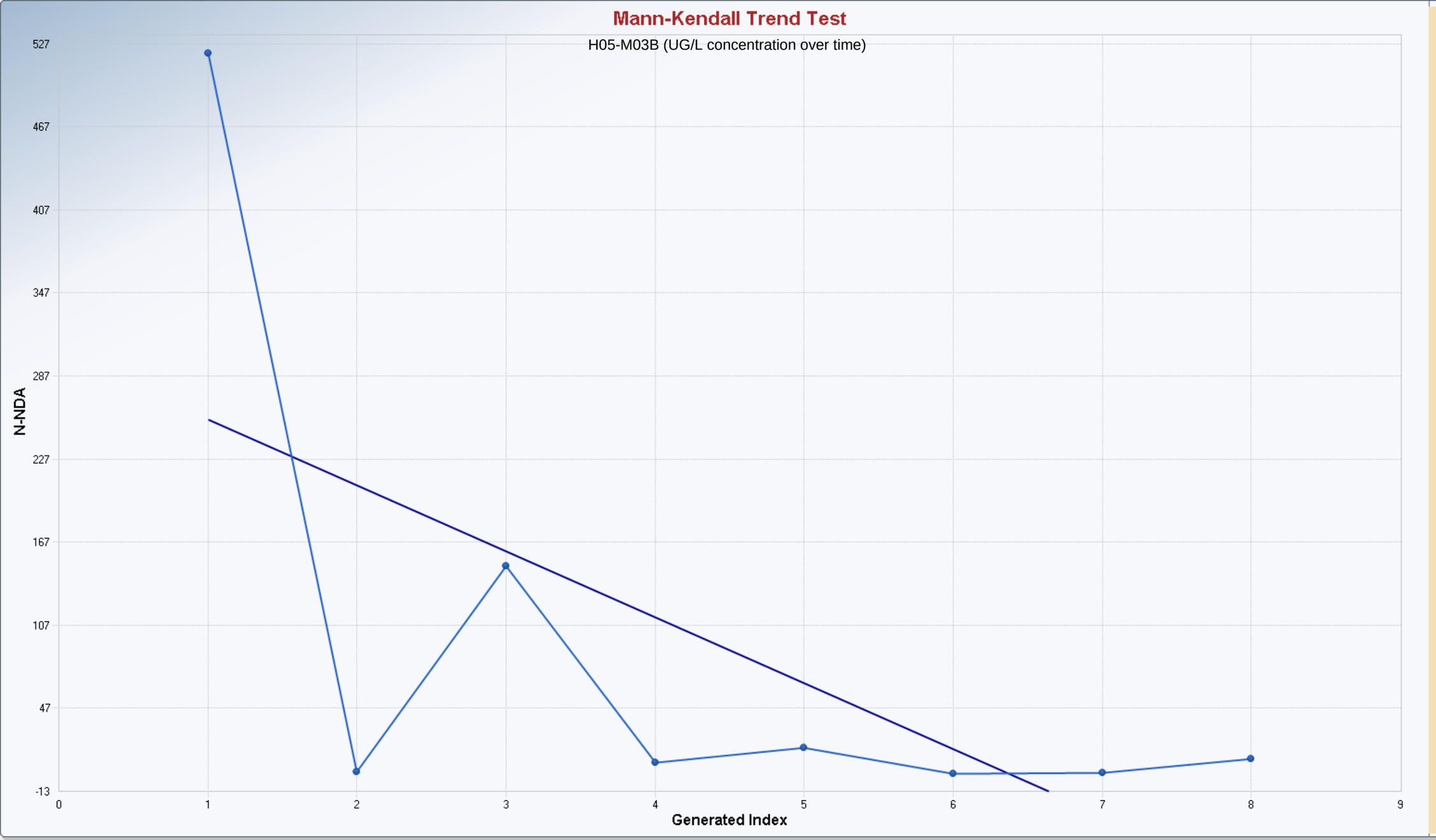
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-1.1135
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1328

OLS Regression Line (Blue)

OLS Regression Slope	-744.0476
OLS Regression Intercept	6,093.2143

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-1.1135
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1328

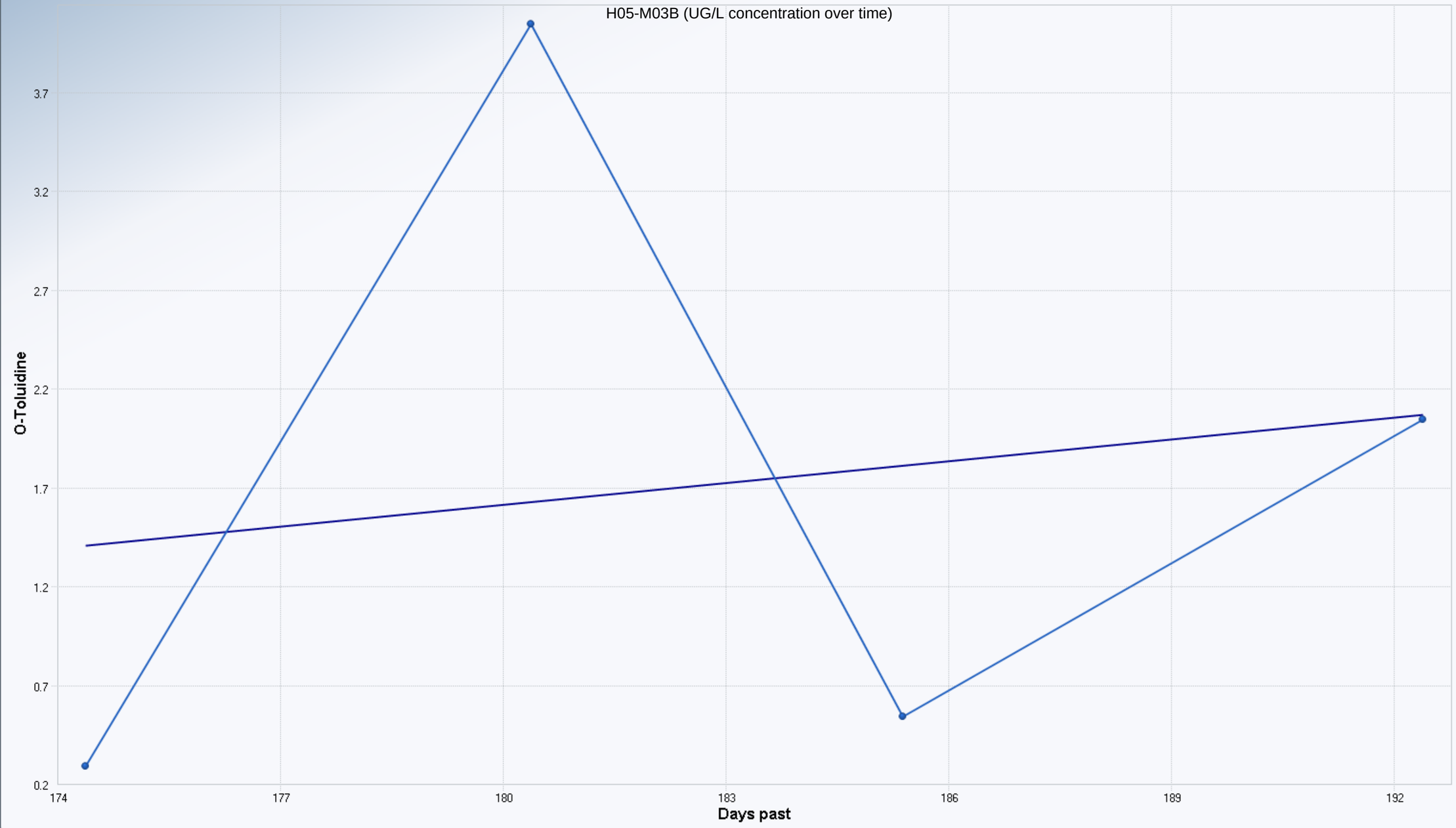
OLS Regression Line (Blue)

OLS Regression Slope	-47.6458
OLS Regression Intercept	303.1625

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M03B (UG/L concentration over time)



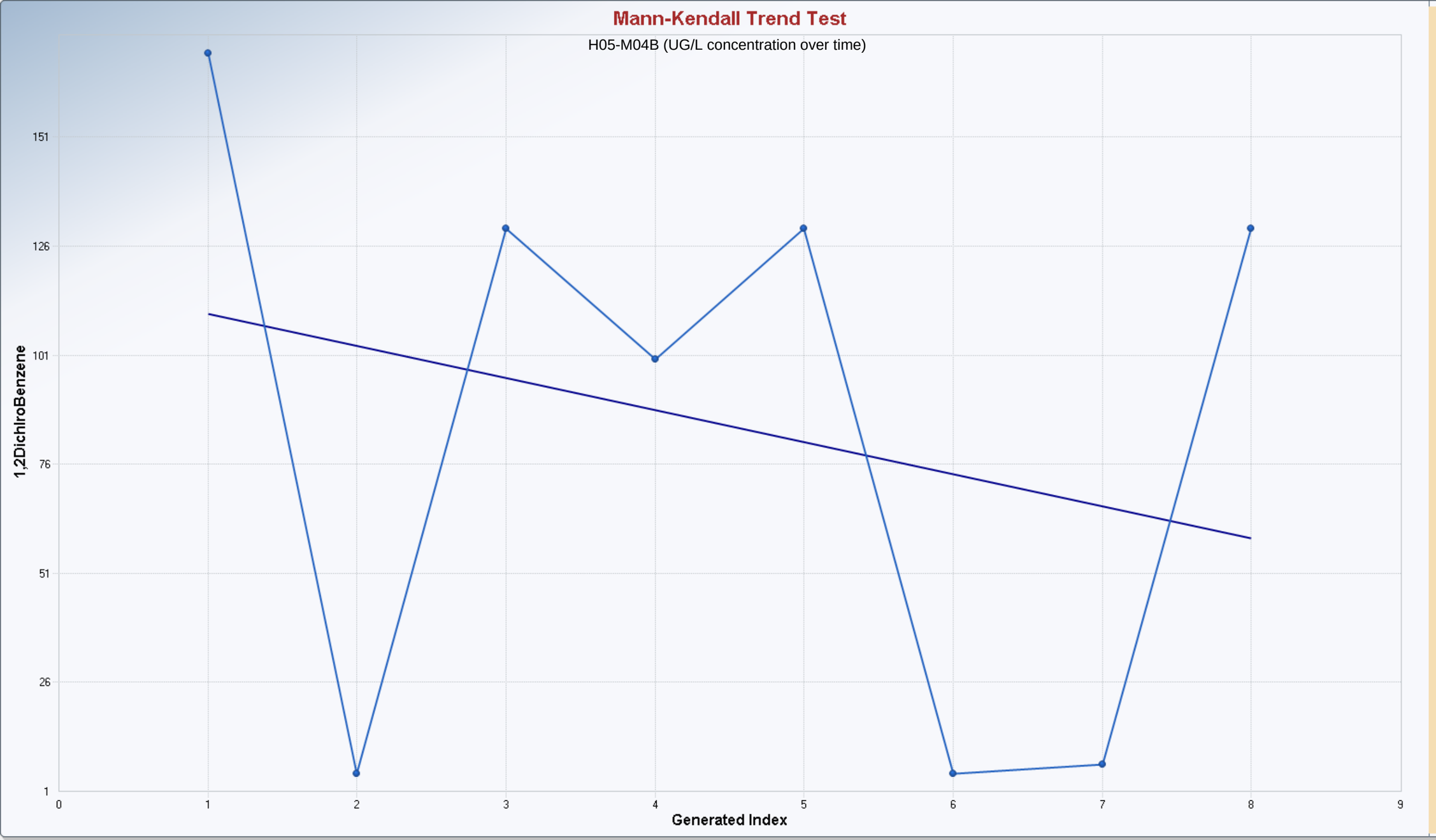
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	0.3397
M-K Test Value (S)	2
Tabulated p-value	0.3750
Approximate p-value	0.3670

OLS Regression Line (Blue)

OLS Regression Slope	0.0368
OLS Regression Intercept	-5.0447

Insufficient statistical evidence of a significant trend at the specified level of significance.



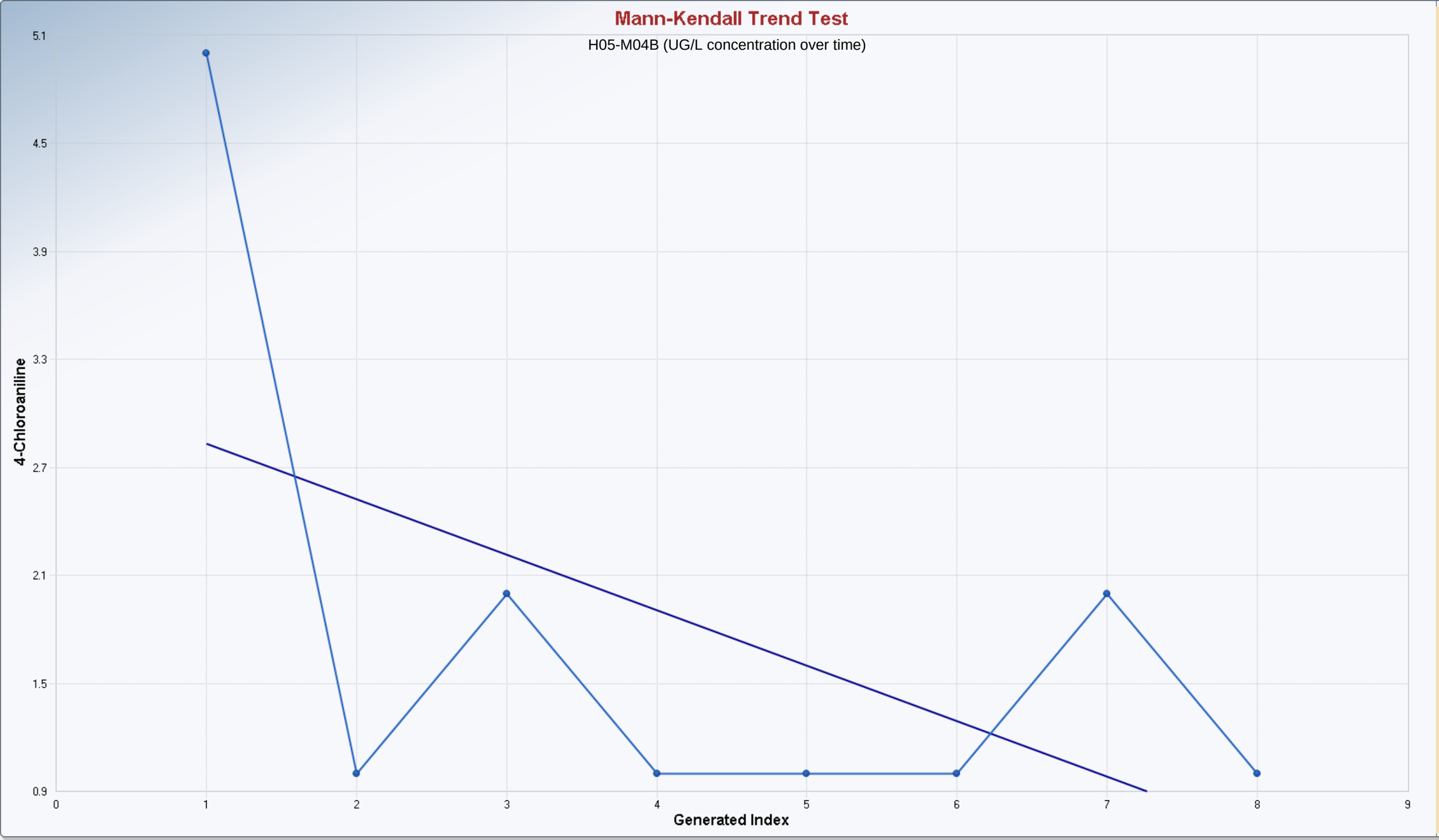
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.7889
Standardized Value of S	-0.3852
M-K Test Value (S)	-4
Tabulated p-value	0.3600
Approximate p-value	0.3501

OLS Regression Line (Blue)

OLS Regression Slope	-7.3214
OLS Regression Intercept	117.5714

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	-0.8690
M-K Test Value (S)	-7
Tabulated p-value	0.2740
Approximate p-value	0.1924

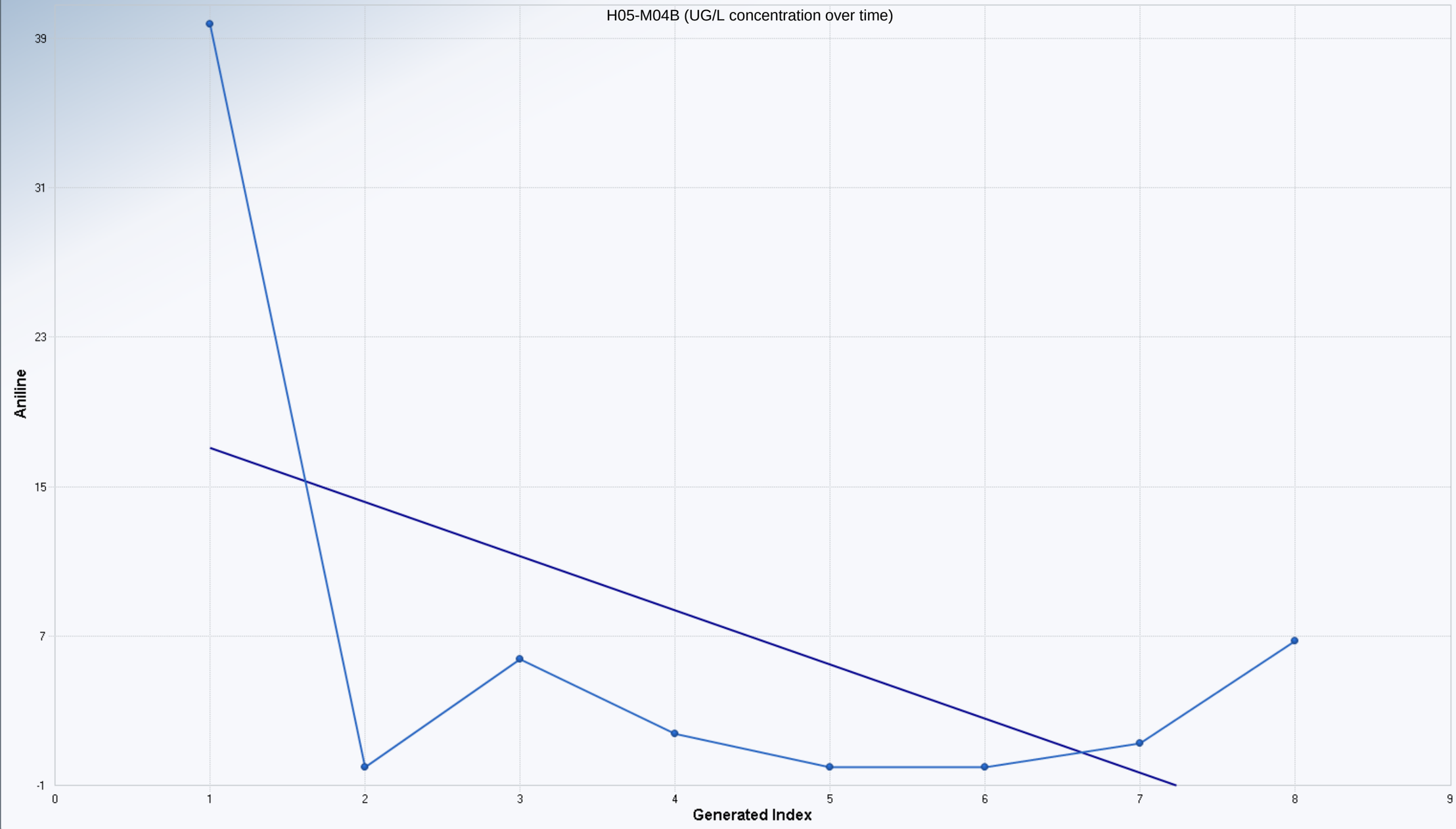
OLS Regression Line (Blue)

OLS Regression Slope	-0.3095
OLS Regression Intercept	3.1429

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M04B (UG/L concentration over time)



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	7.8528
Standardized Value of S	-0.2547
M-K Test Value (S)	-3
Tabulated p-value	0.4520
Approximate p-value	0.3995

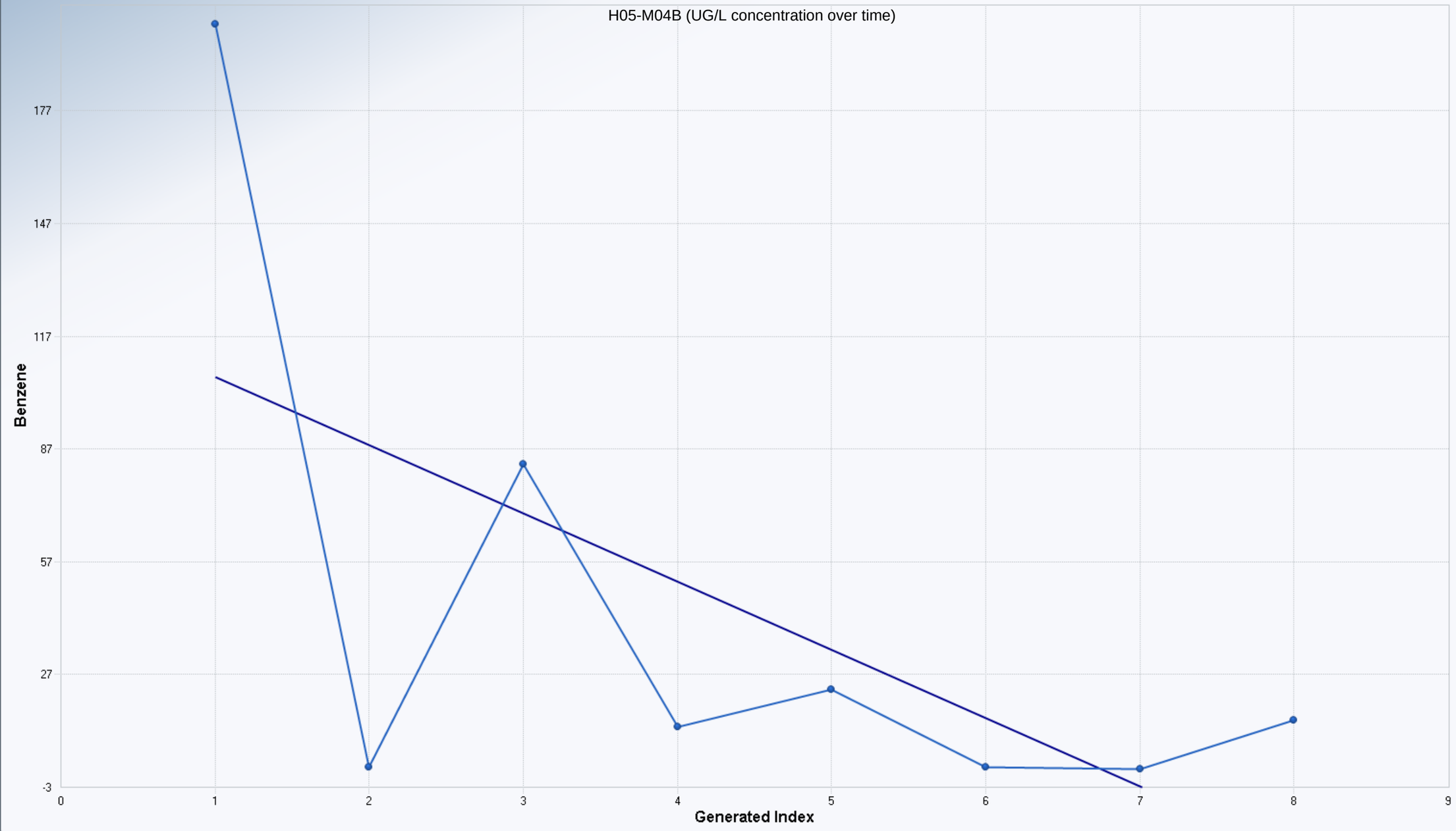
OLS Regression Line (Blue)

OLS Regression Slope	-2.9018
OLS Regression Intercept	20.2143

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M04B (UG/L concentration over time)



Mann-Kendall Trend Analysis

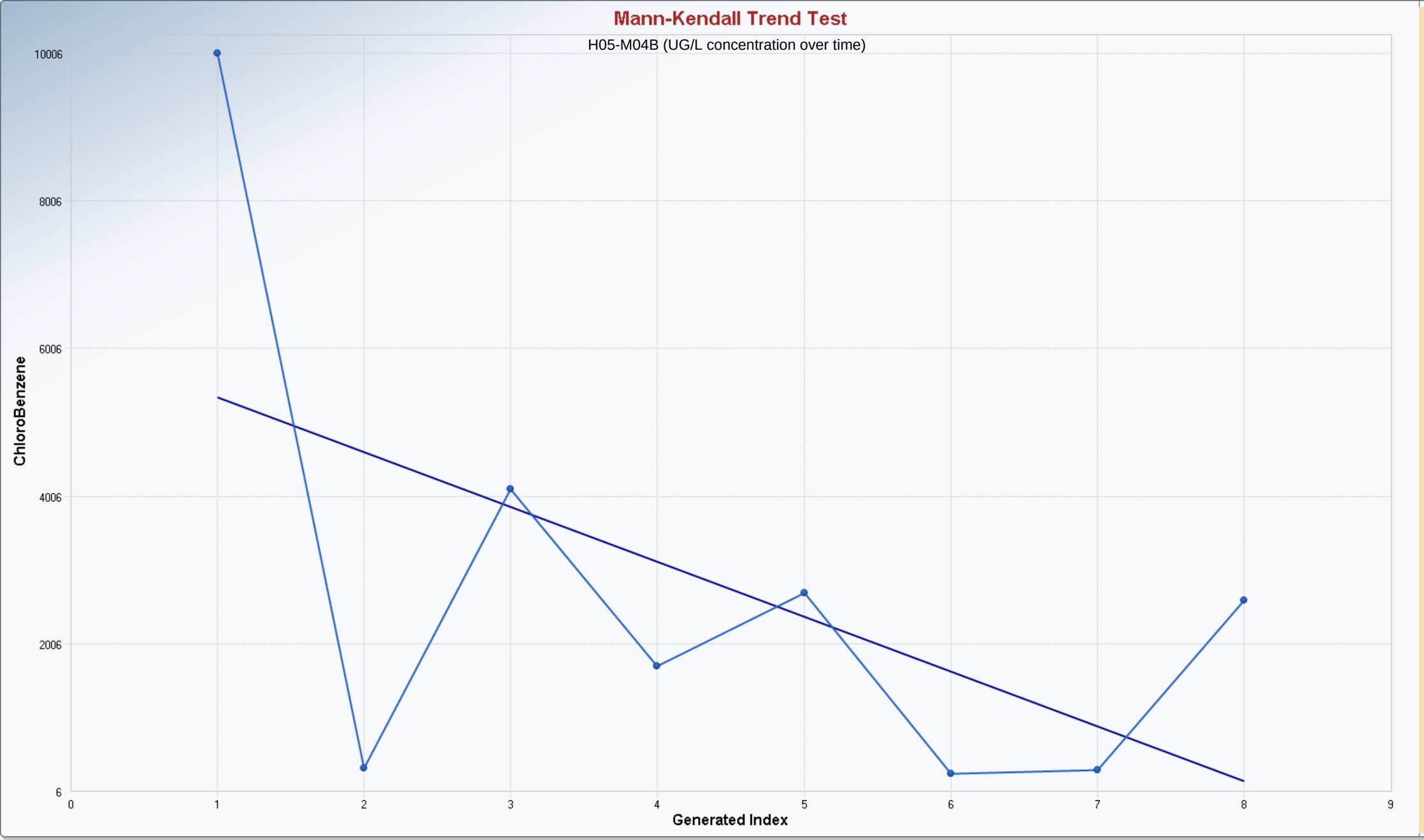
n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-1.2468
M-K Test Value (S)	-11
Tabulated p-value	0.1380
Approximate p-value	0.1062

OLS Regression Line (Blue)

OLS Regression Slope	-18.2024
OLS Regression Intercept	124.5357

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



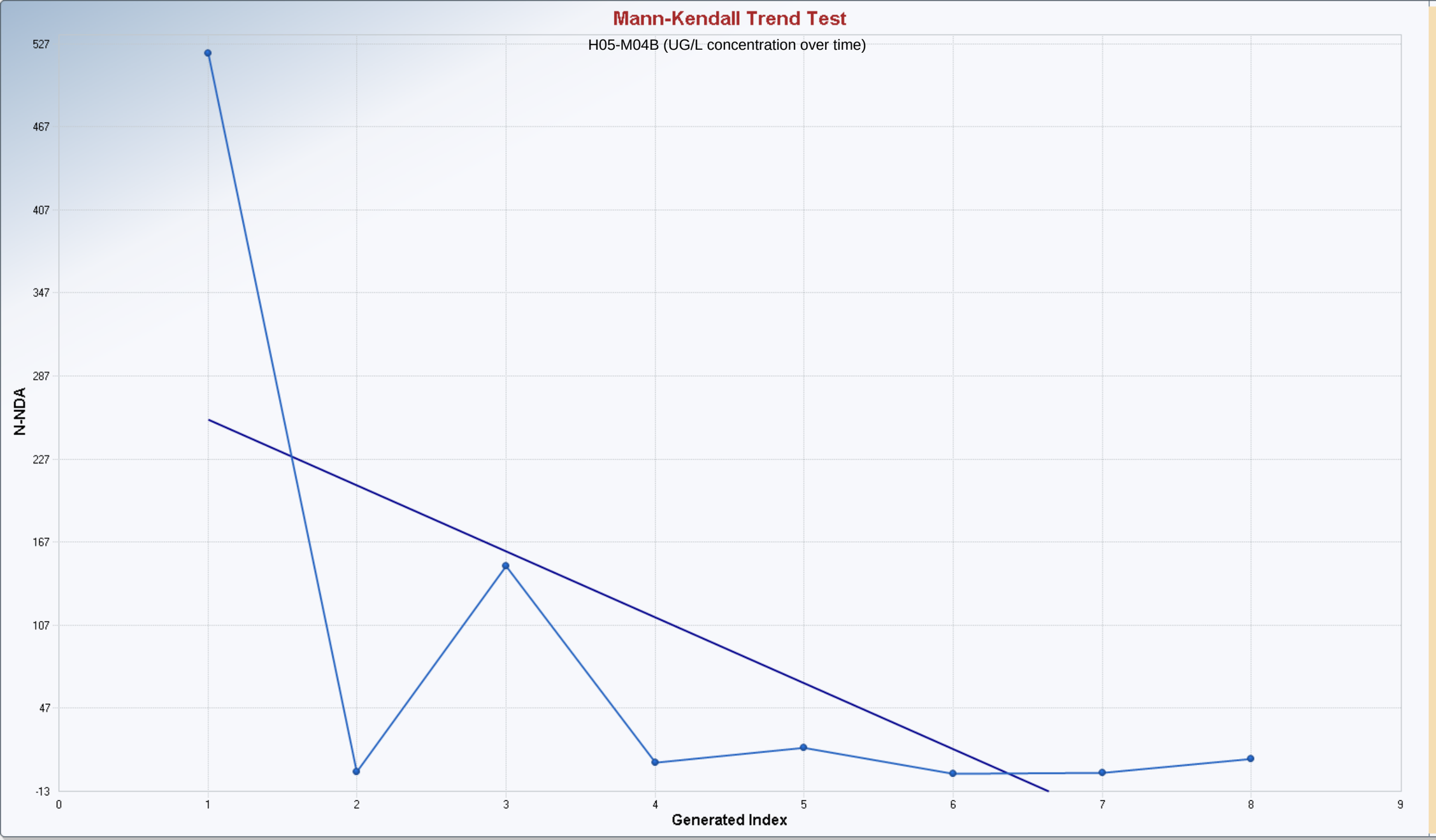
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-1.1135
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1328

OLS Regression Line (Blue)

OLS Regression Slope	-744.0476
OLS Regression Intercept	6,093.2143

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-1.1135
M-K Test Value (S)	-10
Tabulated p-value	0.1380
Approximate p-value	0.1328

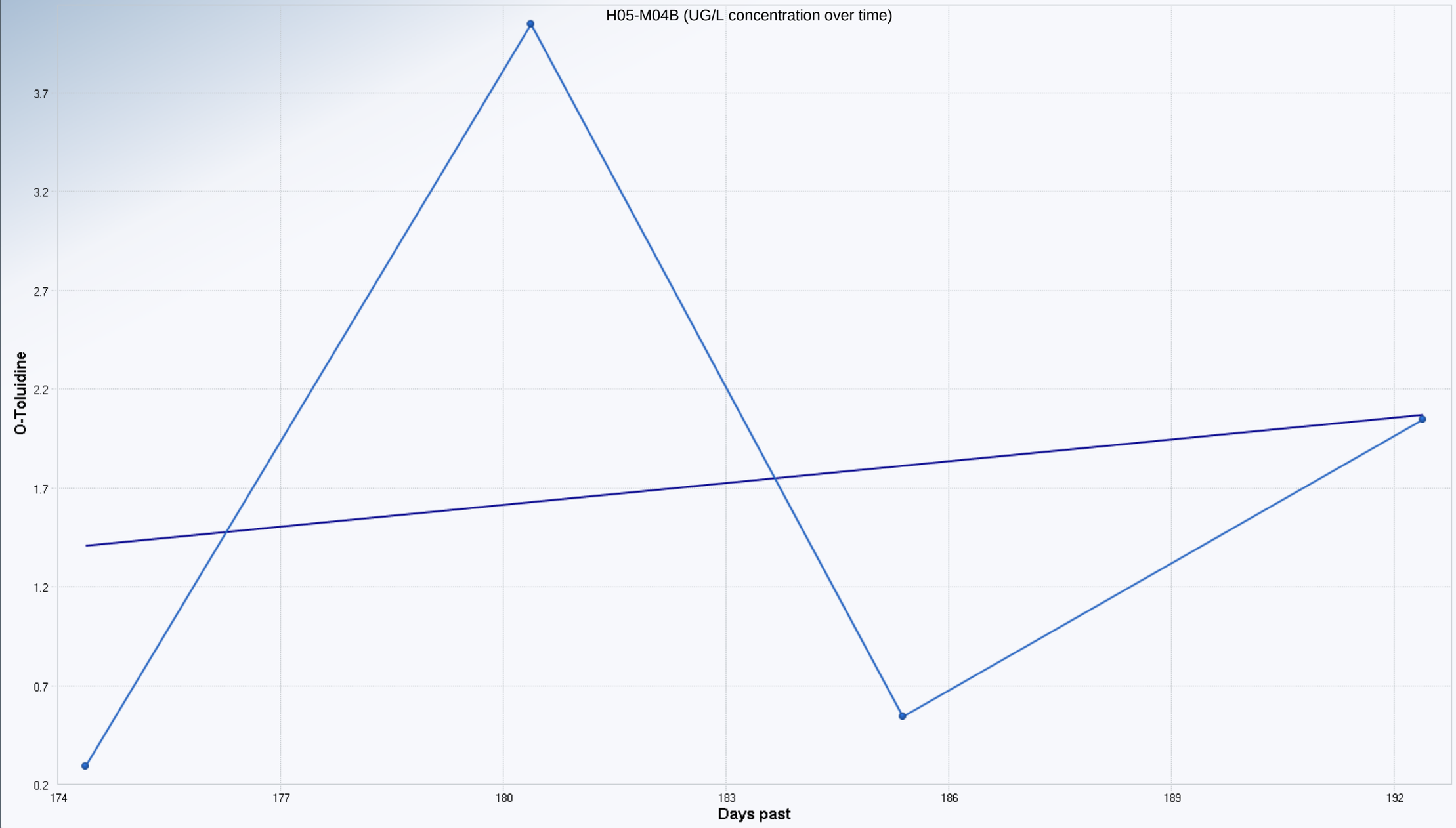
OLS Regression Line (Blue)

OLS Regression Slope	-47.6458
OLS Regression Intercept	303.1625

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

H05-M04B (UG/L concentration over time)



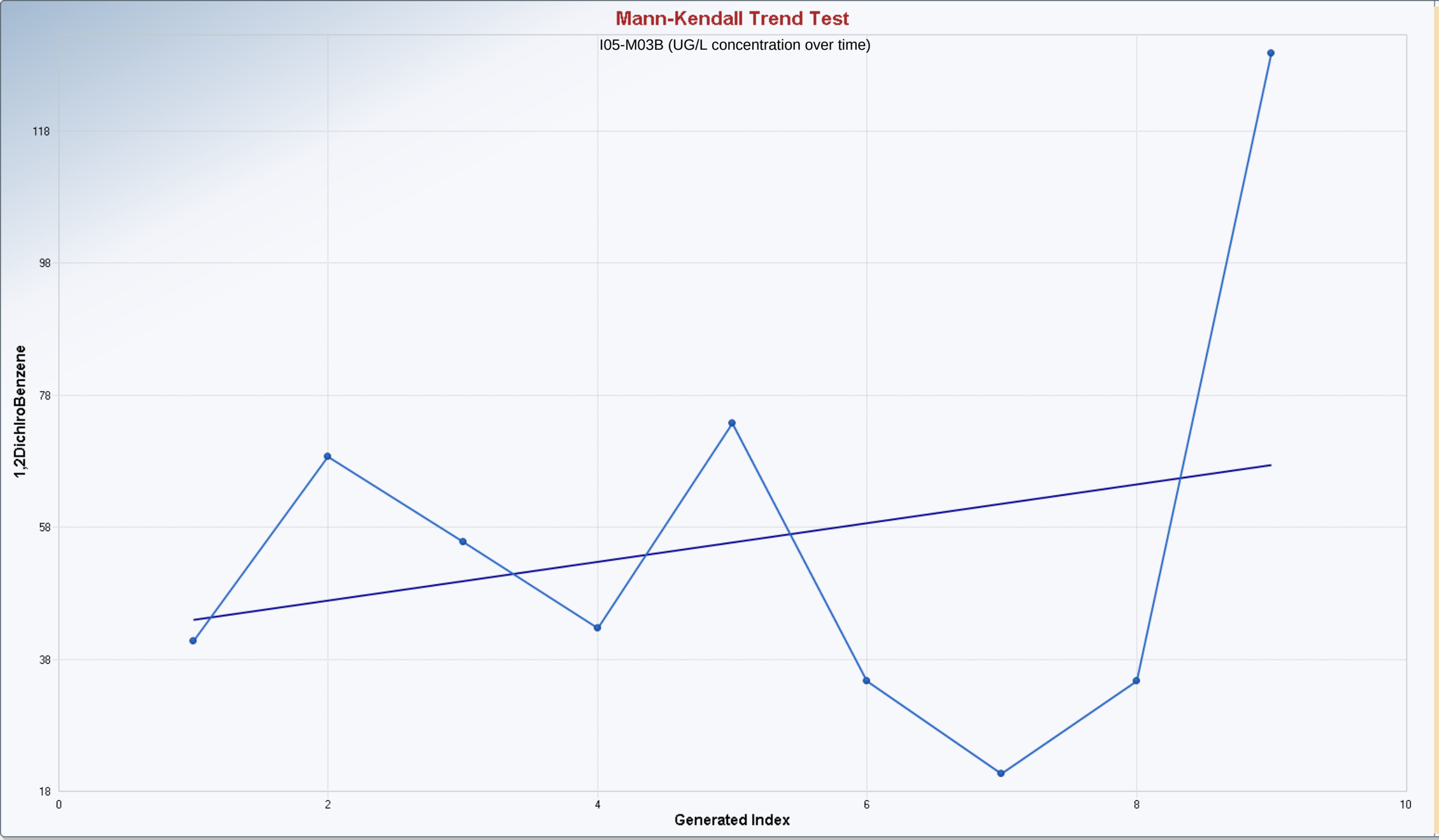
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	0.3397
M-K Test Value (S)	2
Tabulated p-value	0.3750
Approximate p-value	0.3670

OLS Regression Line (Blue)

OLS Regression Slope	0.0368
OLS Regression Intercept	-5.0447

Insufficient statistical evidence of a significant trend at the specified level of significance.



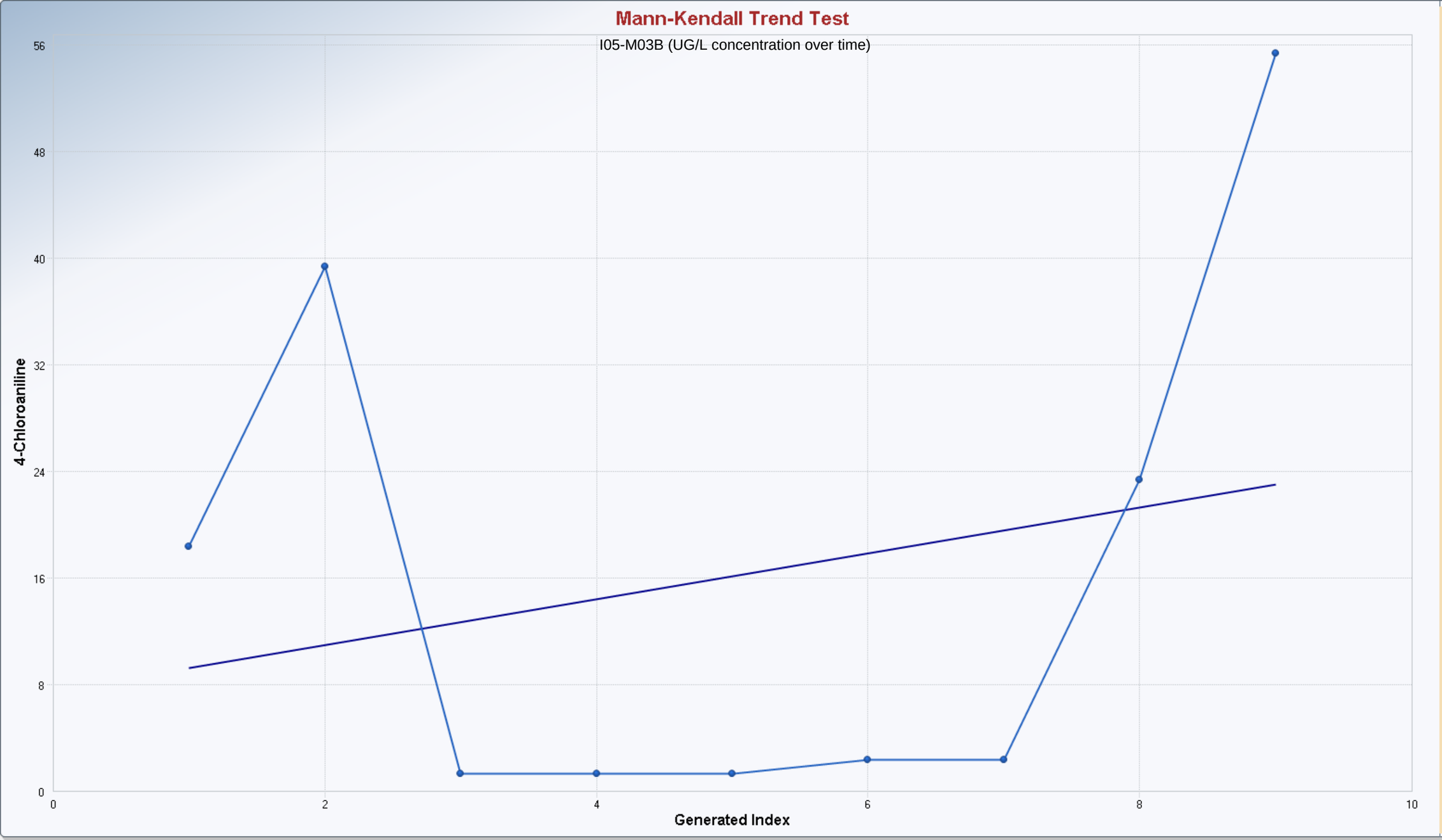
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	-0.2097
M-K Test Value (S)	-3
Tabulated p-value	0.4600
Approximate p-value	0.4170

OLS Regression Line (Blue)

OLS Regression Slope	2.9333
OLS Regression Intercept	41.3333

Insufficient statistical evidence of a significant trend at the specified level of significance.



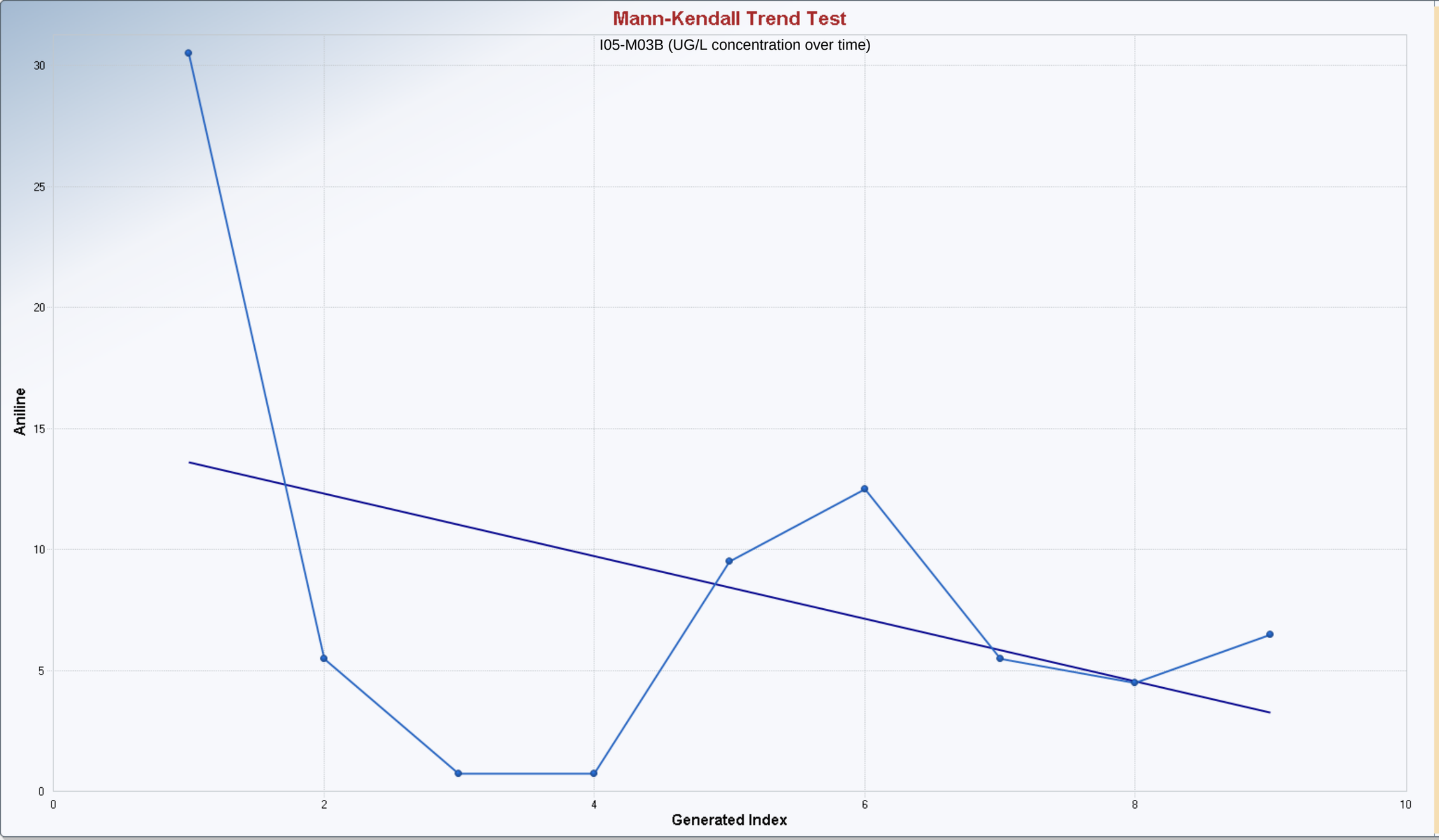
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.3452
Standardized Value of S	0.9631
M-K Test Value (S)	10
Tabulated p-value	0.1790
Approximate p-value	0.1678

OLS Regression Line (Blue)

OLS Regression Slope	1.7167
OLS Regression Intercept	7.1944

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

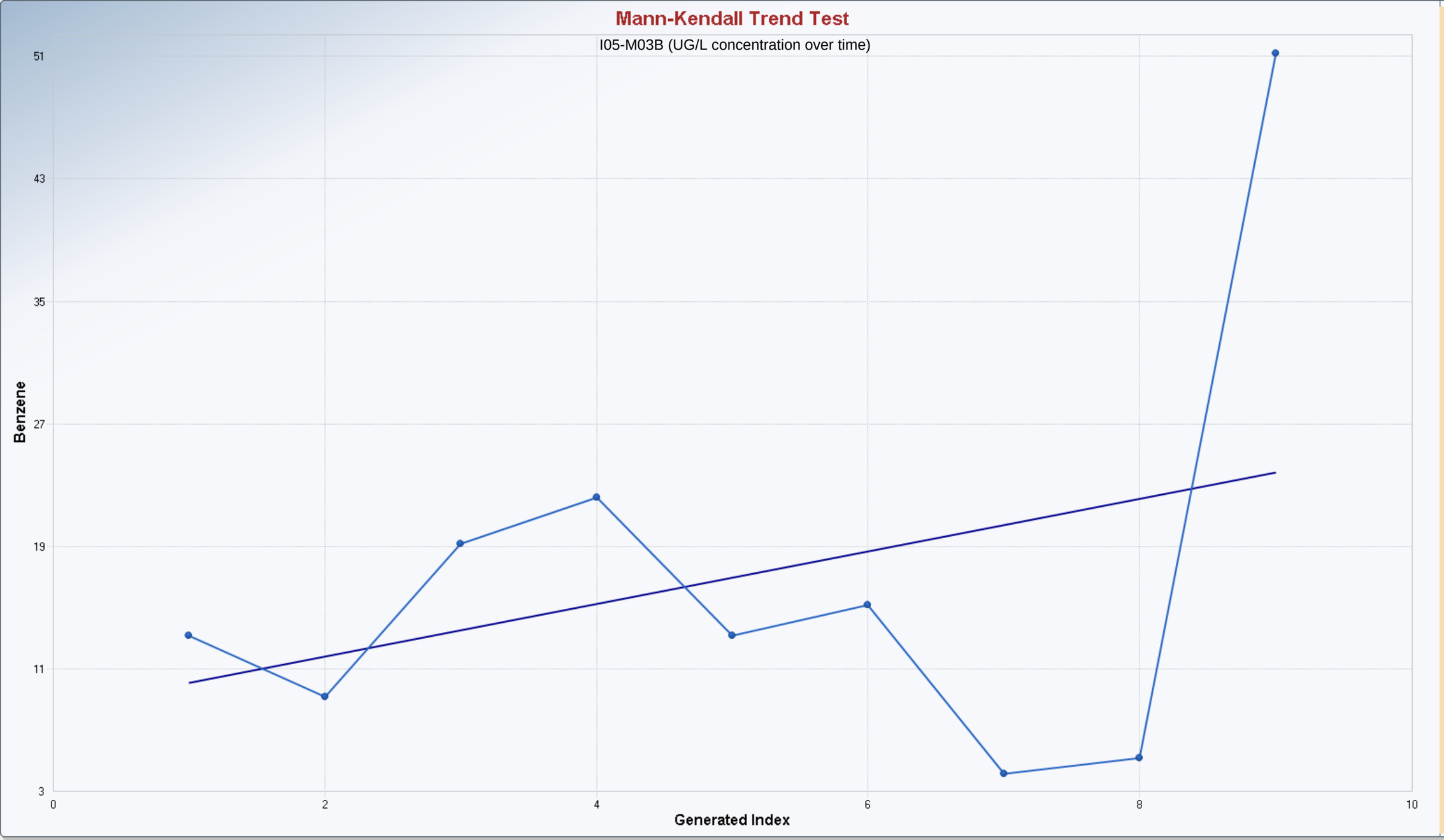
n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.4868
Standardized Value of S	-0.1054
M-K Test Value (S)	-2
Tabulated p-value	0.4600
Approximate p-value	0.4580

OLS Regression Line (Blue)

OLS Regression Slope	-1.2958
OLS Regression Intercept	14.4236

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

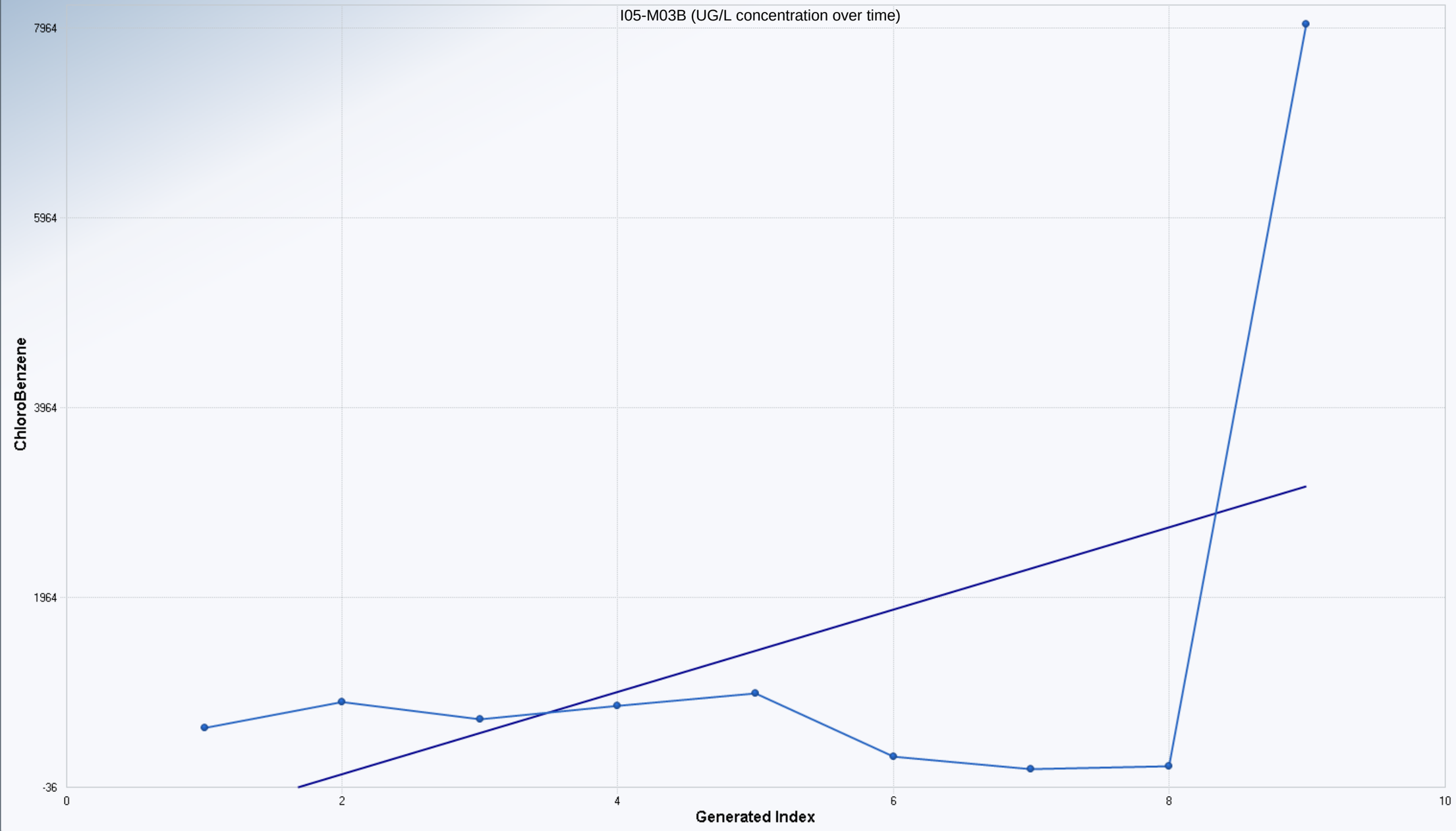
n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5400
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	1.7167
OLS Regression Intercept	8.1944

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



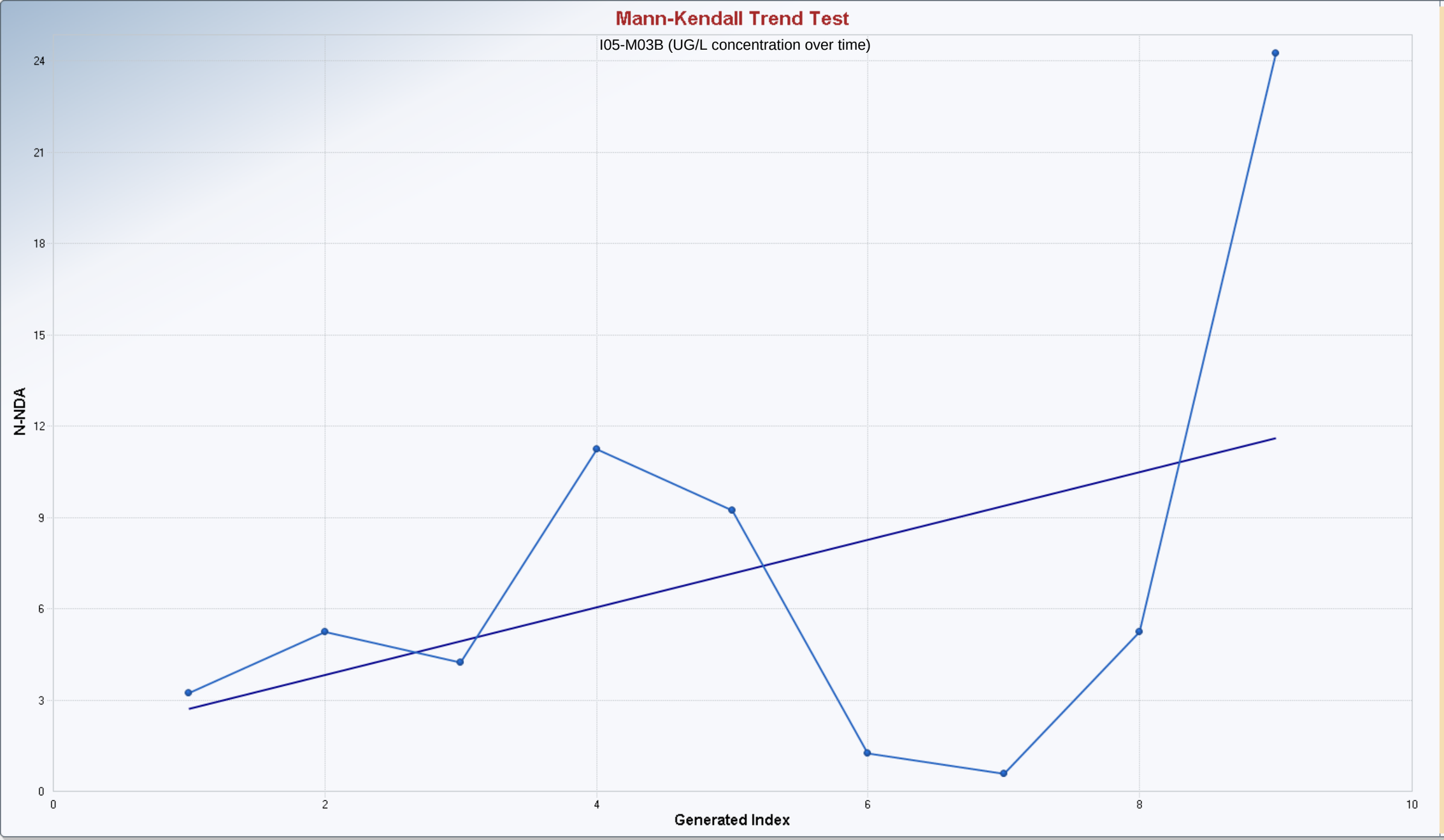
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5917
Standardized Value of S	-0.1043
M-K Test Value (S)	-2
Tabulated p-value	0.4600
Approximate p-value	0.4585

OLS Regression Line (Blue)

OLS Regression Slope	434.3333
OLS Regression Intercept	-778.3333

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	0.4193
M-K Test Value (S)	5
Tabulated p-value	0.3810
Approximate p-value	0.3375

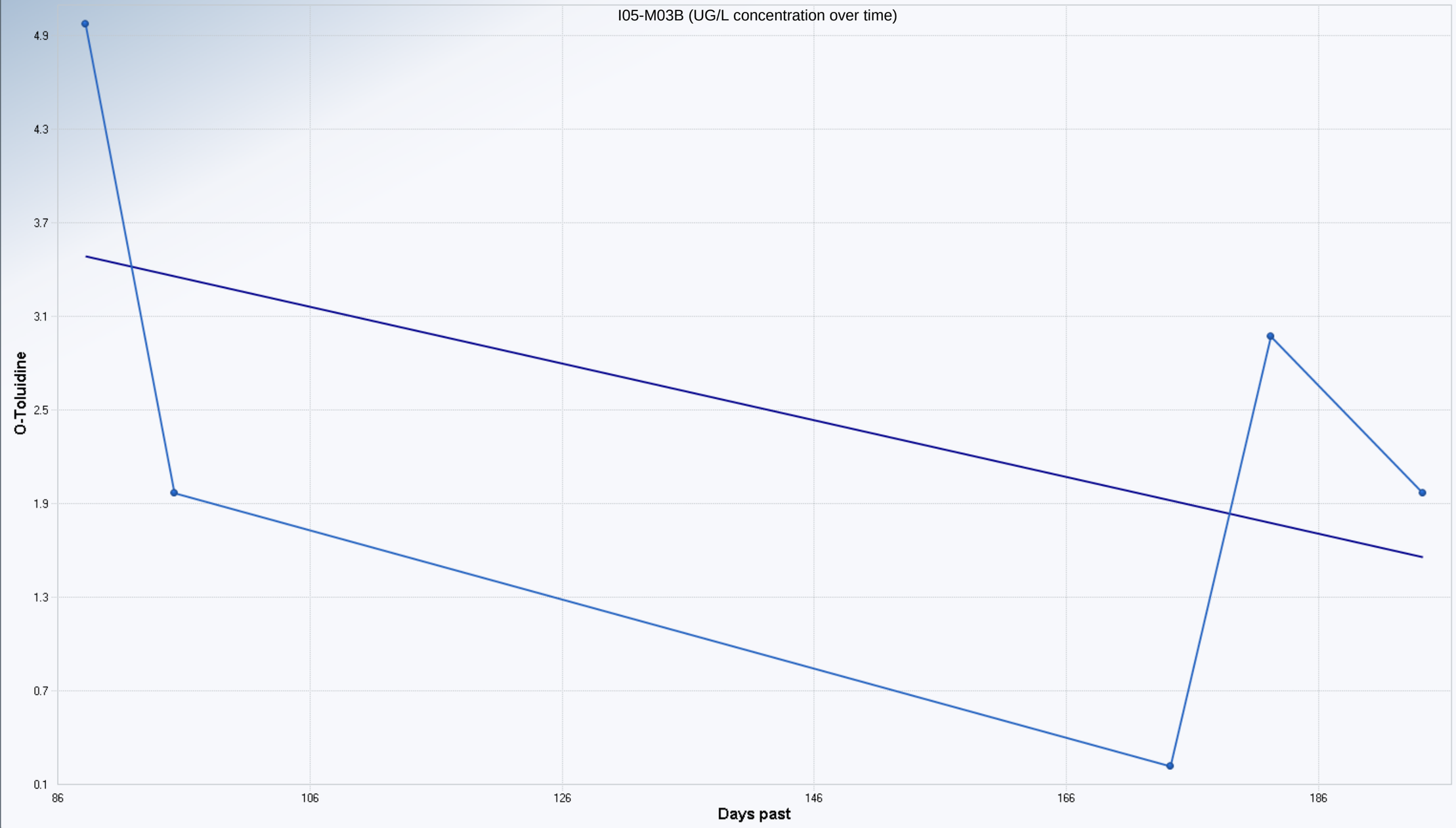
OLS Regression Line (Blue)

OLS Regression Slope	1.1117
OLS Regression Intercept	1.3694

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

I05-M03B (UG/L concentration over time)



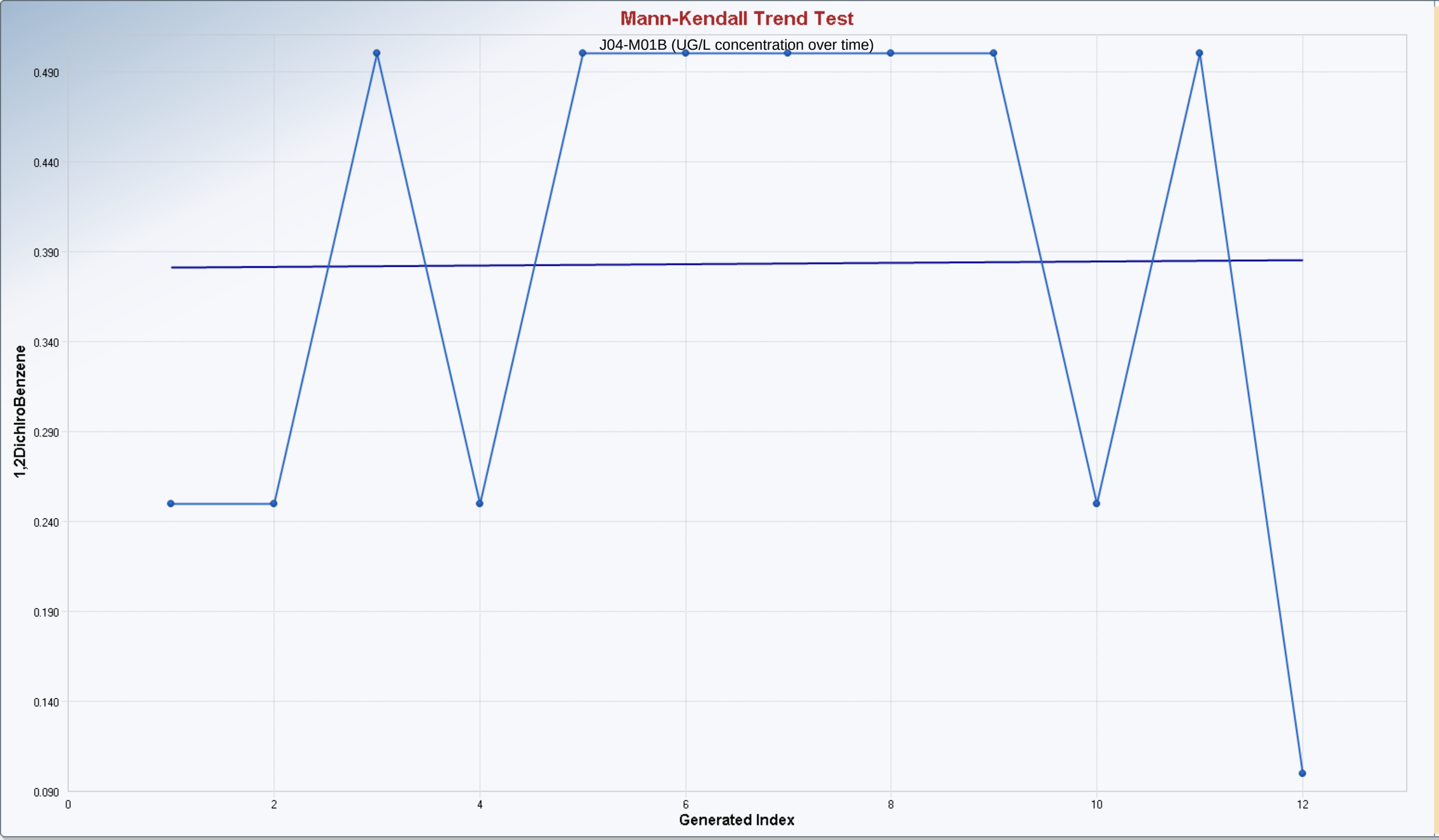
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	3.9581
Standardized Value of S	-0.5053
M-K Test Value (S)	-3
Tabulated p-value	0.4080
Approximate p-value	0.3067

OLS Regression Line (Blue)

OLS Regression Slope	-0.0182
OLS Regression Intercept	5.1186

Insufficient statistical evidence of a significant trend at the specified level of significance.



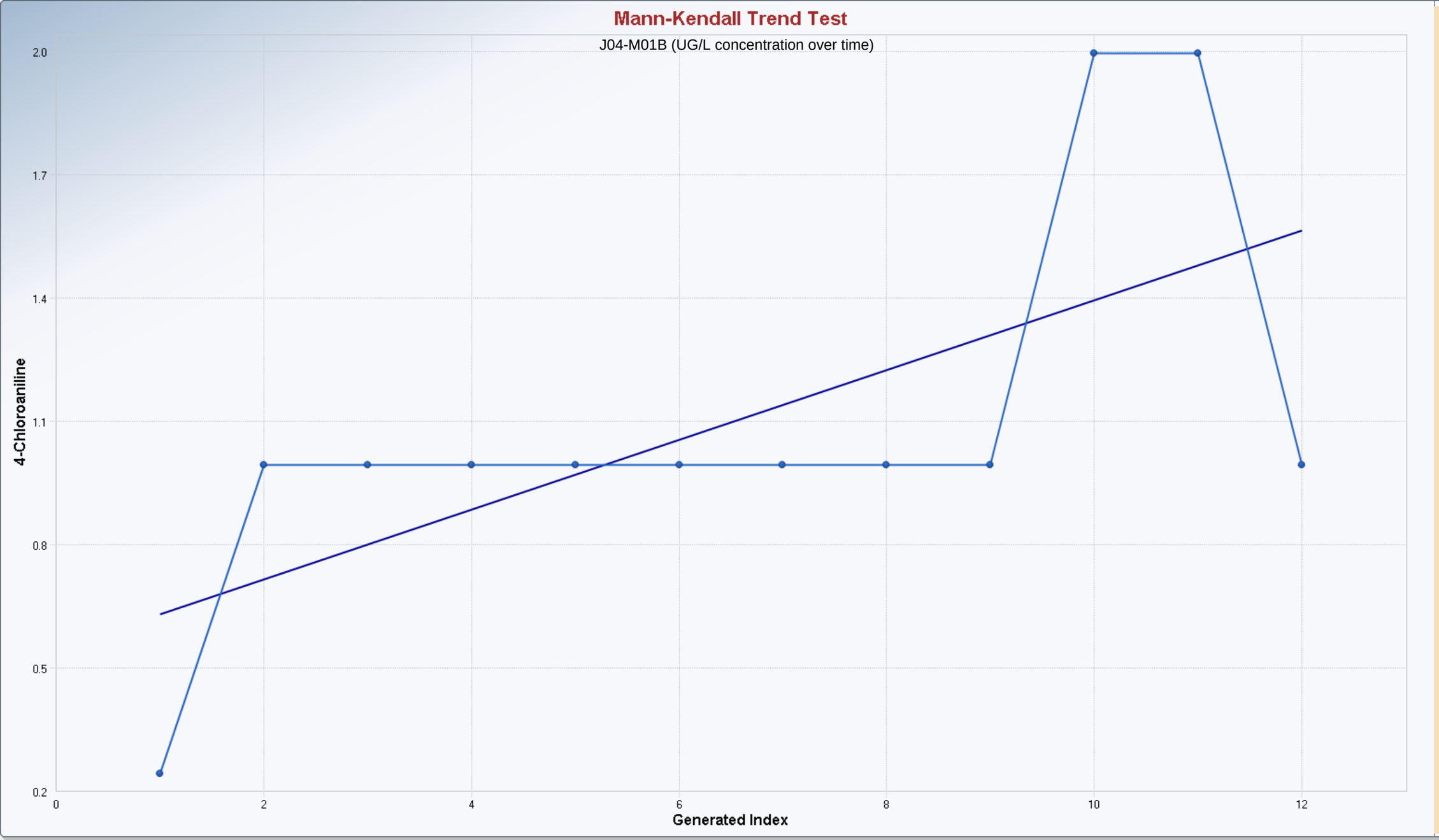
Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.6359
Standardized Value of S	0.1583
M-K Test Value (S)	3
Tabulated p-value	0.4730
Approximate p-value	0.4371

OLS Regression Line (Blue)

OLS Regression Slope	0.0003
OLS Regression Intercept	0.3811

Insufficient statistical evidence of a significant trend at the specified level of significance.



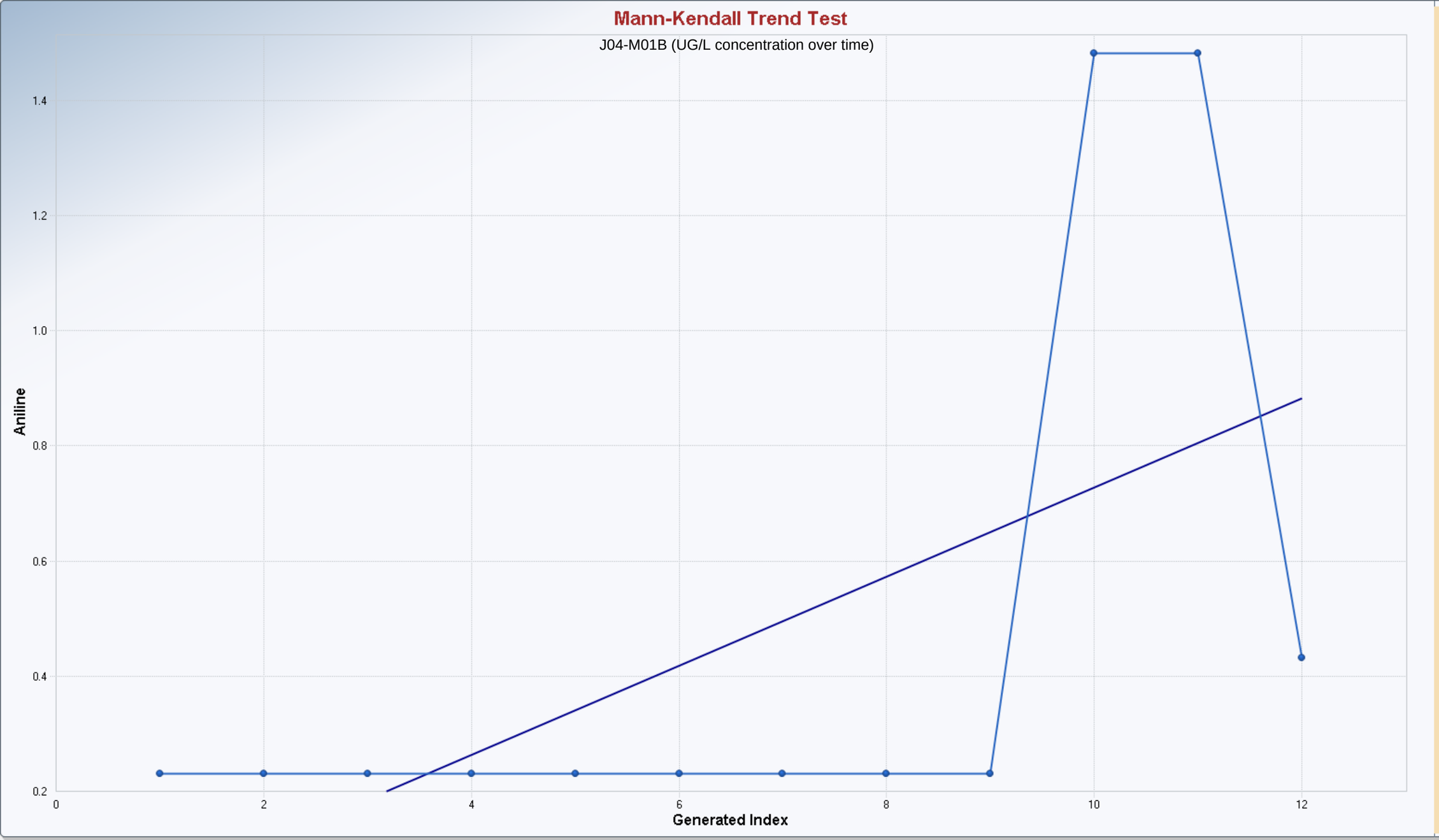
Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	10.9392
Standardized Value of S	2.1939
M-K Test Value (S)	25
Tabulated p-value	0.0580
Approximate p-value	0.0141

OLS Regression Line (Blue)

OLS Regression Slope	0.0848
OLS Regression Intercept	0.5530

Insufficient statistical evidence of a significant trend at the specified level of significance.



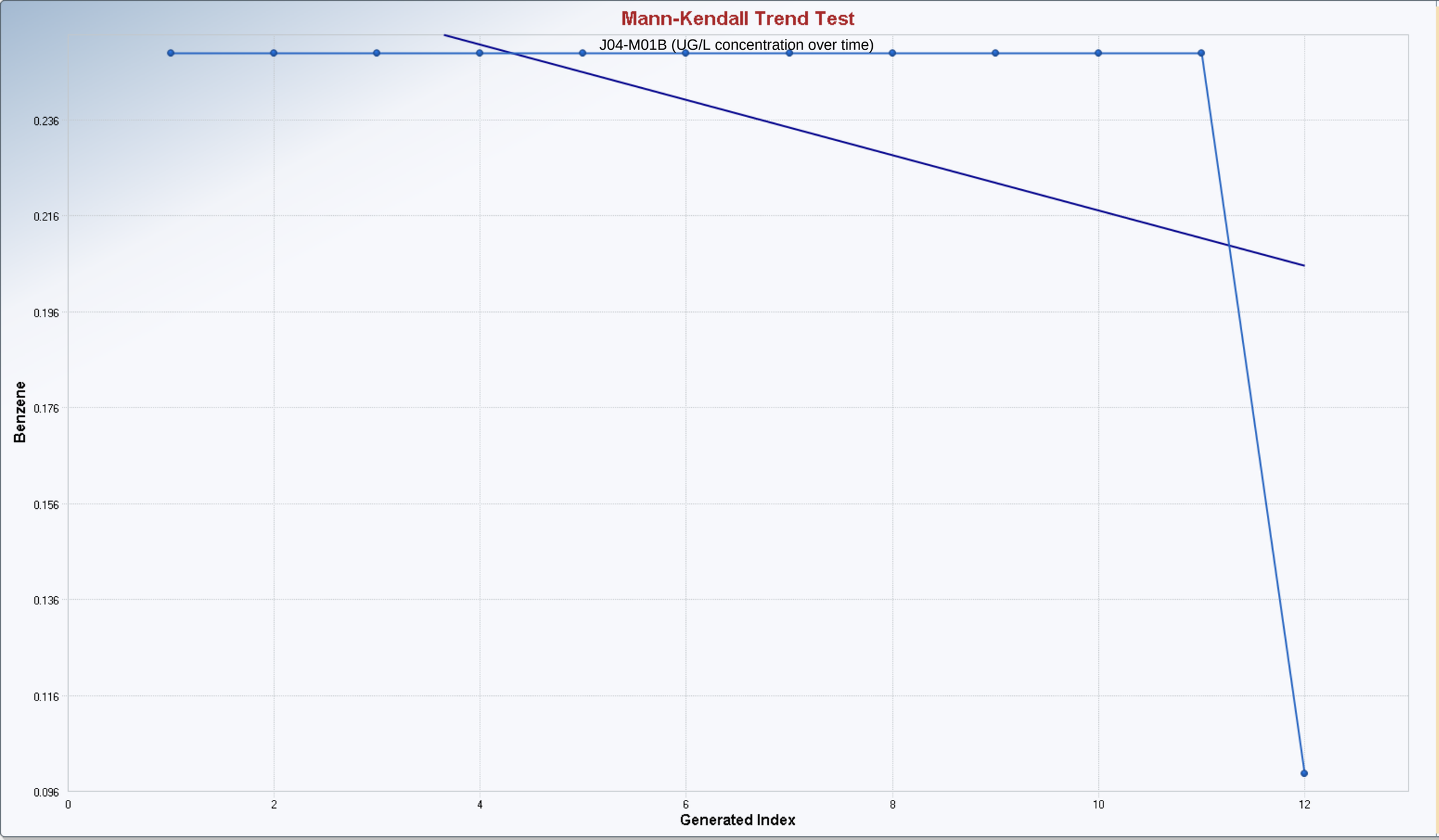
Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	10.9392
Standardized Value of S	2.1939
M-K Test Value (S)	25
Tabulated p-value	0.0580
Approximate p-value	0.0141

OLS Regression Line (Blue)

OLS Regression Slope	0.0776
OLS Regression Intercept	-0.0295

Insufficient statistical evidence of a significant trend at the specified level of significance.



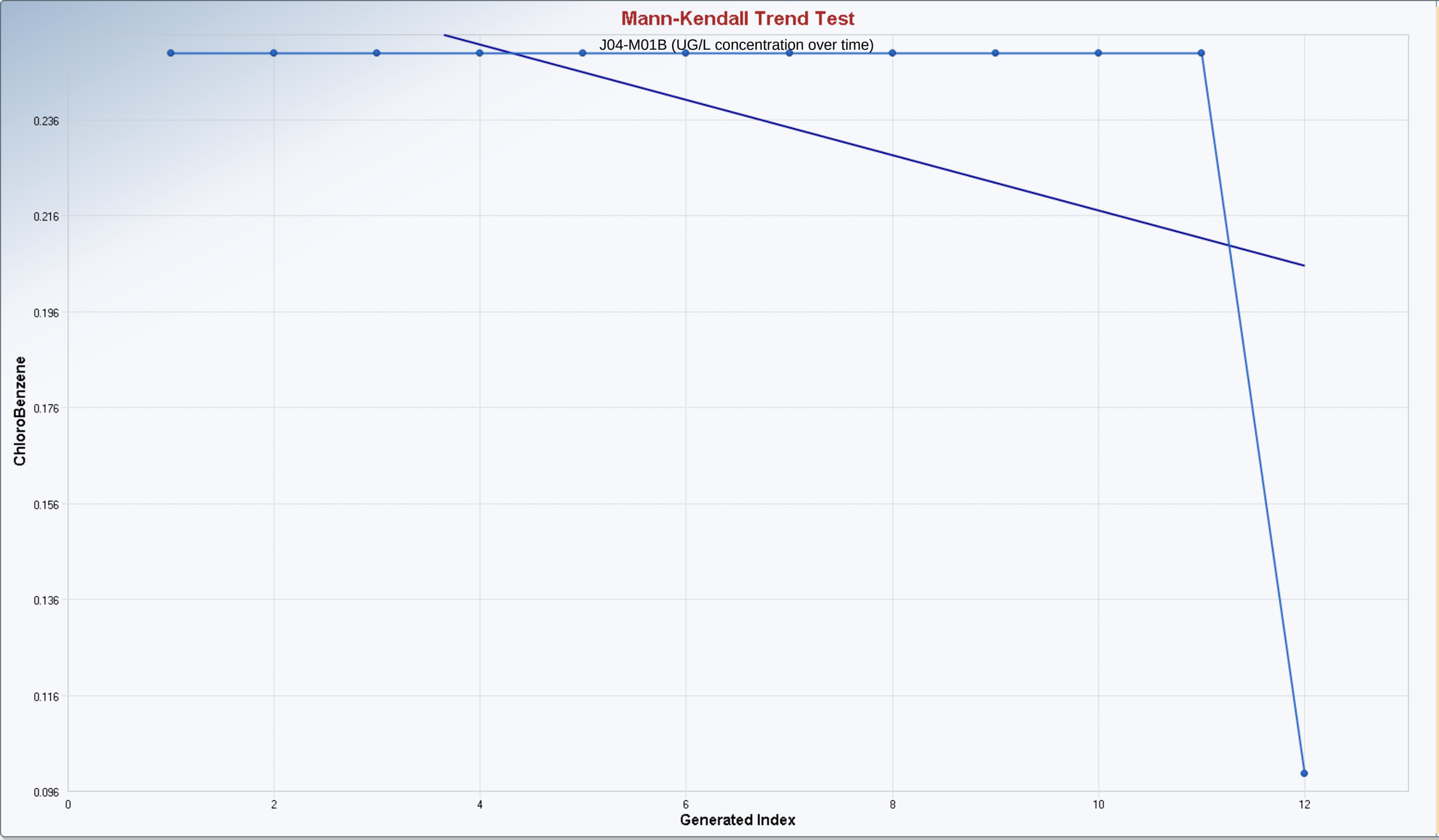
Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	-1.4484
M-K Test Value (S)	-11
Tabulated p-value	0.2730
Approximate p-value	0.0738

OLS Regression Line (Blue)

OLS Regression Slope	-0.0058
OLS Regression Intercept	0.2750

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	-1.4484
M-K Test Value (S)	-11
Tabulated p-value	0.2730
Approximate p-value	0.0738

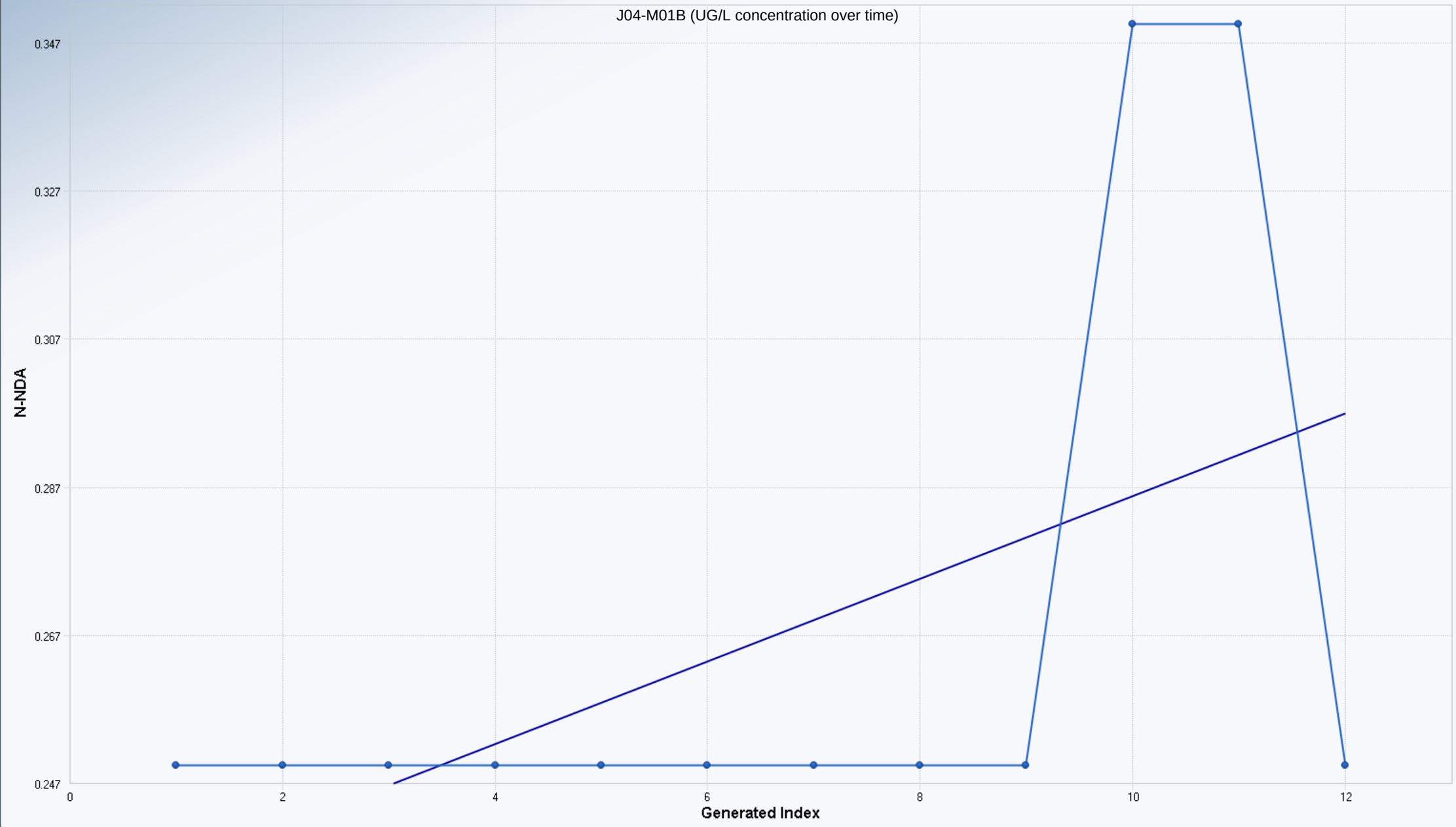
OLS Regression Line (Blue)

OLS Regression Slope	-0.0058
OLS Regression Intercept	0.2750

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

J04-M01B (UG/L concentration over time)



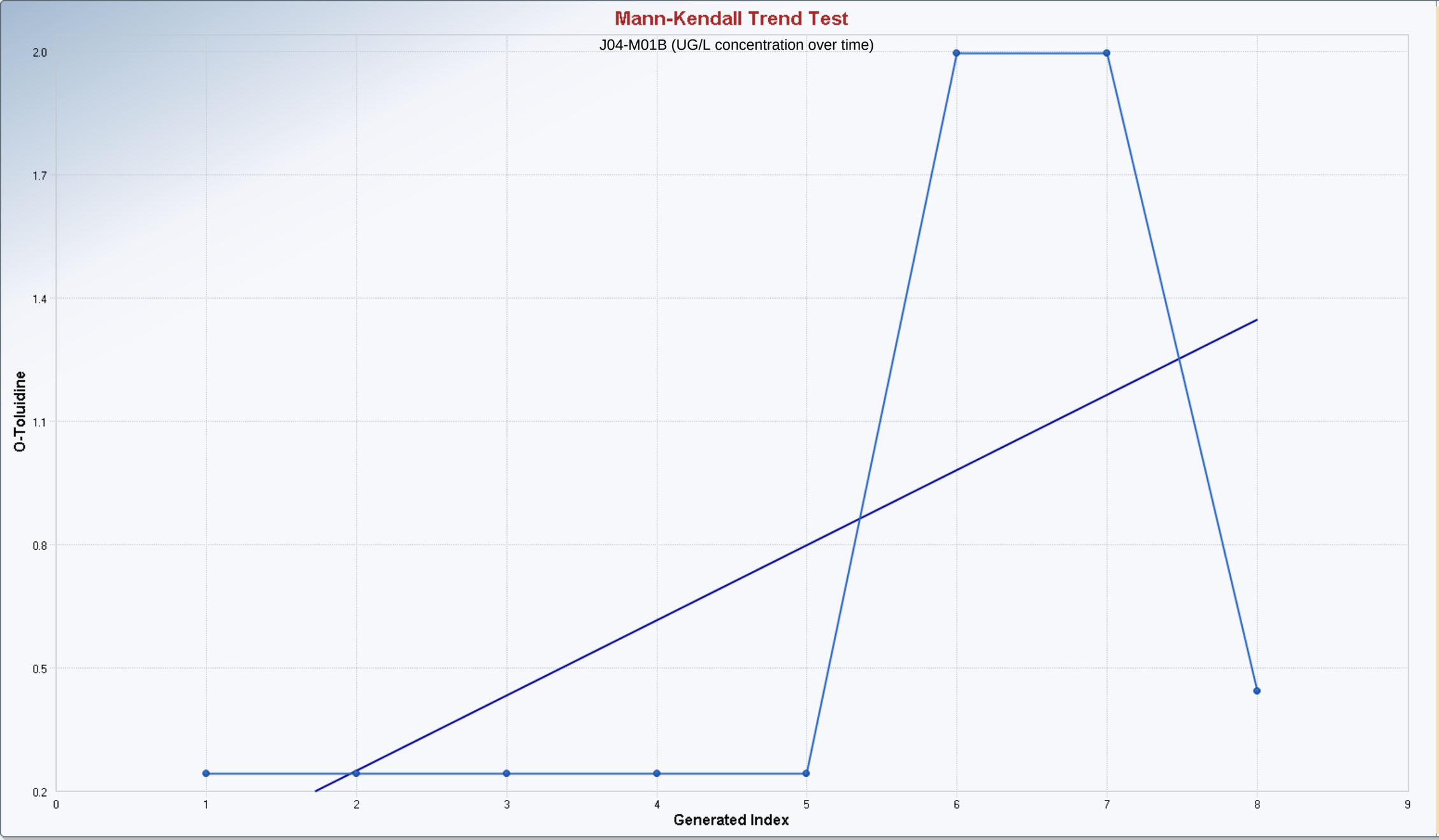
Mann-Kendall Trend Analysis

n	12
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.3095
Standardized Value of S	1.6113
M-K Test Value (S)	16
Tabulated p-value	0.1550
Approximate p-value	0.0536

OLS Regression Line (Blue)

OLS Regression Slope	0.0056
OLS Regression Intercept	0.2303

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.9041
Standardized Value of S	1.7381
M-K Test Value (S)	13
Tabulated p-value	0.0890
Approximate p-value	0.0411

OLS Regression Line (Blue)

OLS Regression Slope	0.1833
OLS Regression Intercept	-0.1125

Insufficient statistical evidence of a significant trend at the specified level of significance.