



ANNEX F5

GROUNDWATER MONITORING RESULTS

TABLE F5.1 GROUNDWATER MONITORING RESULTS (OCTOBER 2023)

Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Water Level	mPD	3.81	3.91	4.04	4.77	4.72	4.71	4.14	4.76	5.64	5.33	5.47	7.49	39.42	46.01
Bicarbonate Alkalinity as CaCO ₃	mg/L	106	191	184	135	47	2	<1	<1	171	200	118	52	17	13
Carbonate Alkalinity as CaCO ₃	mg/L	<1	<1	<1	<1	24	138	68	74	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO ₃	mg/L	106	191	184	135	71	141	82	108	171	200	118	52	17	13
pH Value	pH Unit	8	7.9	7.6	8	9.3	10.4	10.4	10.9	8	7.7	7.6	6.8	5.7	5.5
Electrical Conductivity	µS/cm	837	5580	1060	964	732	934	1610	2650	14000	834	353	331	94	125
Ammonia	mg/L	0.26	1.2	1.43	0.18	0.64	2.23	6.03	4.76	0.5	<0.01	<0.01	<0.01	<0.01	0.06
Chloride	mg/L	158	1710	165	144	106	139	400	636	4400	92	23	20	15	24
Nitrite	mg/L	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	<0.01	0.09	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
Phosphorus	mg/L	0.01	0.01	0.01	0.03	<0.01	<0.01	0.01	<0.01	0.06	0.02	<0.01	0.01	<0.01	<0.01
Sulphate	mg/L	100	334	151	176	138	95	138	248	768	131	34	79	4	6
Sulphide	mg/L	<0.1	<0.1	0.2	<0.1	<0.1	4.3	4.1	2.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.4	1.2	1.5	0.4	1	2.5	6.4	4.9	0.5	<0.1	<0.1	0.2	<0.1	<0.1
Nitrate	mg/L	0.04	0.23	<0.01	<0.01	0.02	0.01	<0.01	0.07	<0.01	0.04	0.52	0.7	0.13	0.18
Total Nitrogen	mg/L	0.5	1.5	1.5	0.4	1.1	2.6	6.4	5.1	0.5	0.1	0.6	0.9	0.2	0.2
Boron	µg/L	130	720	220	230	260	260	380	210	2790	260	80	30	20	20
Calcium	mg/L	40.7	101	90.8	77	8.12	8.12	22.9	104	99.8	81.6	44.7	29.1	0.89	1.56
Mercury	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Magnesium	mg/L	4.66	99.6	6.28	4.43	0.26	<0.05	0.06	0.07	222	6.69	2.61	4.83	1.03	1.34
Sodium	mg/L	104	850	102	100	103	140	252	362	2380	79.2	23.3	26.4	14	17.2
Iron	mg/L	<0.04	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Potassium	mg/L	19.1	46	26.1	20.3	42.9	55.6	53.7	89.4	107	12.4	6.09	5.67	4.04	4.58
Cadmium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2
Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/L	<1	<1	<1	<1	2	10	<1	<1	<1	2	<1	<1	2	<1
Lead	µg/L	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	1	<1	<1
Manganese	µg/L	304	193	903	42	2	<1	<1	<1	224	548	6	531	10	9
Nickel	µg/L	<1	<1	<1	<1	<1	2	1	2	<1	<1	<1	<1	<1	<1
Zinc	µg/L	<10	419	<10	<10	<10	33	<10	<10	11	773	<10	49	33	13
Biochemical Oxygen Demand	mg/L	<2	<2	<2	<2	<2	3	<2	<2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	9	5	12	13	14	35	31	26	32	7	7	4	3	2
Total Organic Carbon	mg/L	6	2	7	5	3	7	7	6	5	4	5	1	1	2

TABLE F5.2 GROUNDWATER MONITORING RESULTS (NOVEMBER 2023)

Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Water Level	mPD	3.11	3.51	3.24	3.27	3.32	3.51	3.64	4.46	4.34	4.33	3.87	7.29	37.52	45.81
Bicarbonate Alkalinity as CaCO ₃	mg/L	119	253	154	26	10	<1	<1	<1	168	231	133	54	16	13
Carbonate Alkalinity as CaCO ₃	mg/L	<1	<1	<1	23	55	139	110	82	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO ₃	mg/L	119	253	154	49	65	181	149	102	168	231	133	54	16	13
pH Value	pH Unit	8	7.9	7.9	9.3	9.9	11.1	11	11	8	7.8	7.8	7	5.8	5.6
Electrical Conductivity	µS/cm	1070	1100	1190	736	1020	1160	1240	2350	15100	1150	343	311	91	117
Ammonia	mg/L	0.3	0.03	1.68	1.81	2.06	3.79	6.53	4.76	0.54	0.02	0.02	0.05	<0.01	<0.01
Chloride	mg/L	204	40	216	142	197	188	222	570	4780	160	19	20	14	24
Nitrite	mg/L	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosphorus	mg/L	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.03	0.01	0.03	<0.01	<0.01
Sulphate	mg/L	130	330	148	109	154	35	172	256	862	153	16	69	3	4
Sulphide	mg/L	<0.1	<0.1	0.2	3.1	2.9	11.2	7.3	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.6	<0.1	1.8	1.9	2.5	4.4	7.2	4.9	0.6	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate	mg/L	<0.01	4.57	0.01	<0.01	<0.01	0.01	<0.01	0.08	0.01	<0.01	0.06	0.01	0.13	0.17
Total Nitrogen	mg/L	0.6	4.6	1.8	1.9	2.5	4.4	7.2	5	0.6	<0.1	<0.1	<0.1	0.2	0.2
Boron	µg/L	160	230	220	210	210	220	260	190	2550	280	40	20	10	10
Calcium	mg/L	49.8	79.3	80	22	15.4	26.3	26	86.6	111	92.6	45.1	27.1	0.85	1.46
Mercury	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20



Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Magnesium	mg/L	6.04	55.1	6.09	0.82	0.12	<0.05	<0.05	<0.05	246	9.87	2.72	4.51	1.07	1.3
Sodium	mg/L	124	55.6	112	95.2	139	144	167	321	2420	118	19.3	24	13.2	16.5
Iron	mg/L	<0.04	<0.04	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.29	<0.04	<0.04
Potassium	mg/L	21.8	15.9	26	20.8	47.4	53	49.8	83.8	109	11.6	6.07	3.19	3.96	4.36
Cadmium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/L	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	2	3
Lead	µg/L	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	µg/L	366	133	1040	6	<1	<1	<1	<1	263	1970	15	776	11	9
Nickel	µg/L	<1	<1	<1	<1	1	2	2	3	<1	<1	<1	<1	<1	<1
Zinc	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	61	611
Biochemical Oxygen Demand	mg/L	<2	<2	3	2	<2	7	5	2	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	10	2	15	14	22	35	38	24	28	5	<2	2	<2	3
Total Organic Carbon	mg/L	6	1	9	6	7	11	12	9	<5	2	<1	1	<1	1

TABLE F5.3 GROUNDWATER MONITORING RESULTS (DECEMBER 2023)

Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Water Level	mPD	3.01	2.95	2.89	2.62	3.36	3.18	2.46	2.78	3.12	3.34	3.15	8.63	36.16	44.99
Bicarbonate Alkalinity as CaCO ₃	mg/L	171	260	154	9	<1	<1	4	<1	101	198	170	54	17	13
Carbonate Alkalinity as CaCO ₃	mg/L	<1	<1	<1	42	96	137	66	78	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO ₃	mg/L	171	260	154	50	133	189	71	114	101	198	170	54	17	13
pH Value	pH Unit	8	8	8.1	9.8	11.1	11.3	10.2	10.9	8	8	8.2	7.1	5.9	5.8
Electrical Conductivity	µS/cm	1070	1000	1140	786	1110	1190	2040	3330	2010	722	430	303	91	99
Ammonia	mg/L	0.04	0.02	1.54	2.9	2.17	4.36	5.8	13	1.39	0.02	0.03	<0.01	0.02	<0.01
Chloride	mg/L	185	40	218	156	187	189	552	819	448	73	26	20	15	20
Nitrite	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phosphorus	mg/L	0.01	0.02	0.01	0.01	<0.01	0.01	0.02	<0.01	0.02	0.02	0.01	0.04	0.01	<0.01
Sulphate	mg/L	69	227	98	87	108	88	74	105	222	48	18	61	3	2
Sulphide	mg/L	<0.1	<0.1	0.1	2.7	7.1	10.1	4.1	12.4	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.1	<1.0	1.8	3	2.2	5.1	6	13.2	1.8	0.1	0.1	<0.1	<0.1	<0.1
Nitrate	mg/L	<0.01	5.38	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.1	0.12
Total Nitrogen	mg/L	0.1	5.4	1.8	3	2.2	5.1	6	13.2	1.8	0.1	0.1	<0.1	0.2	0.2
Boron	µg/L	180	230	230	230	210	210	520	430	340	130	70	20	10	10
Calcium	mg/L	60.3	73.5	78.8	19.9	29.7	27.6	26.4	107	119	69.8	57.6	24	0.89	0.92
Mercury	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20



Parameters	Units	MWX-1	MWX-2	MWX-3	MWX-4	MWX-5	MWX-6	MWX-7	MWX-8	MWX-9	MWX-10	MWX-11	MWX-12	MWX-13	MWX-14
Magnesium	mg/L	8.85	51.9	5.48	0.29	<0.05	<0.05	0.36	<0.05	5.11	5.83	3.1	4.09	0.99	0.97
Sodium	mg/L	116	51.9	119	107	147	154	323	486	252	58.9	24.1	22.6	12.4	13.6
Iron	mg/L	<0.04	<0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.41	<0.04	<0.04
Potassium	mg/L	21.2	14.4	27.6	23	53.4	54	58.4	83.6	35.9	9.74	6.31	2.6	3.46	3.41
Cadmium	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	1
Lead	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	µg/L	444	139	919	2	<1	<1	<1	<1	278	580	460	691	14	7
Nickel	µg/L	<1	<1	<1	<1	1	2	<1	1	<1	<1	<1	<1	<1	<1
Zinc	µg/L	<10	267	<10	<10	61	<10	<10	<10	<10	12	<10	20	26	15
Biochemical Oxygen Demand	mg/L	<2	<2	<2	<2	4	10	<2	9	2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	3	<2	19	19	28	54	18	40	24	6	<2	<2	<2	<2
Total Organic Carbon	mg/L	1	<1	8	6	6	10	4	11	11	<1	<1	<1	<1	<1

FIGURE F5.1 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-1)

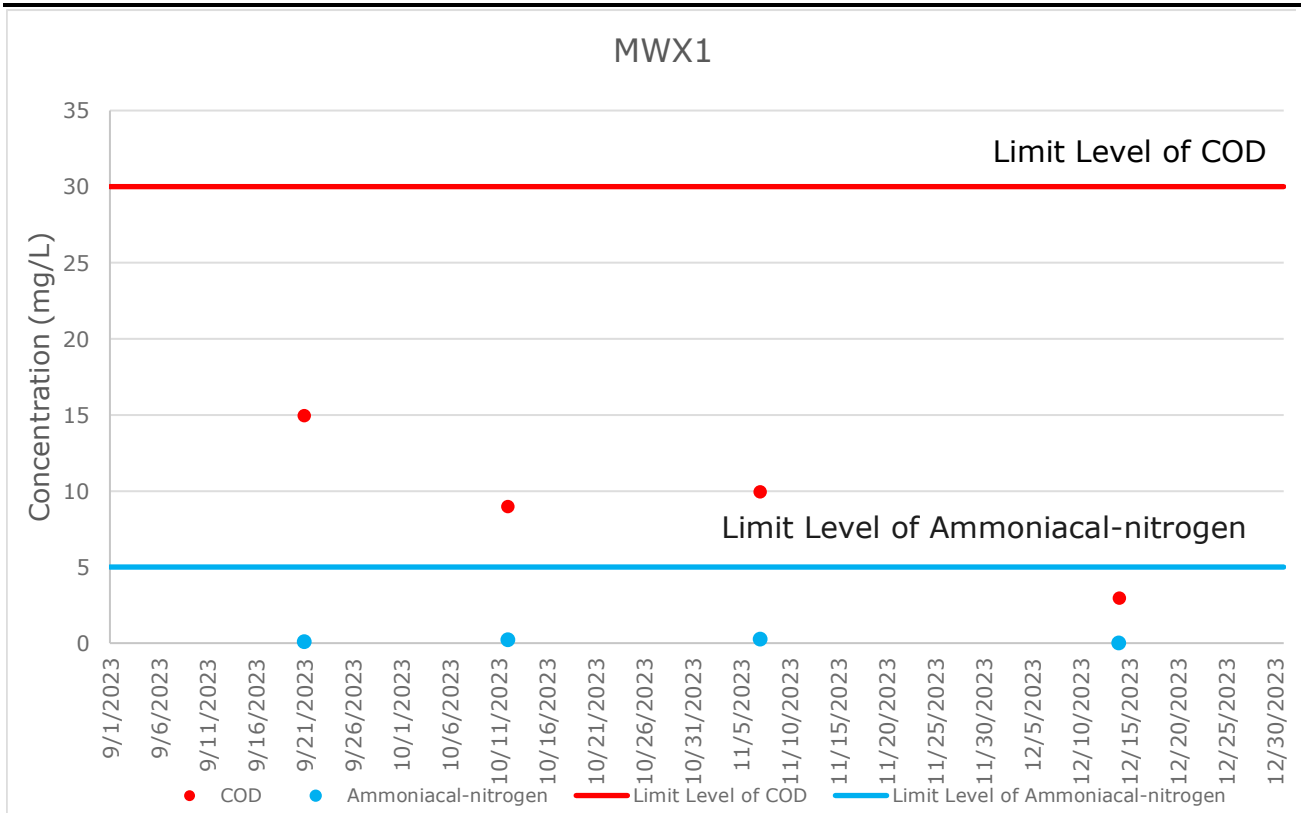


FIGURE F5.2 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-2)

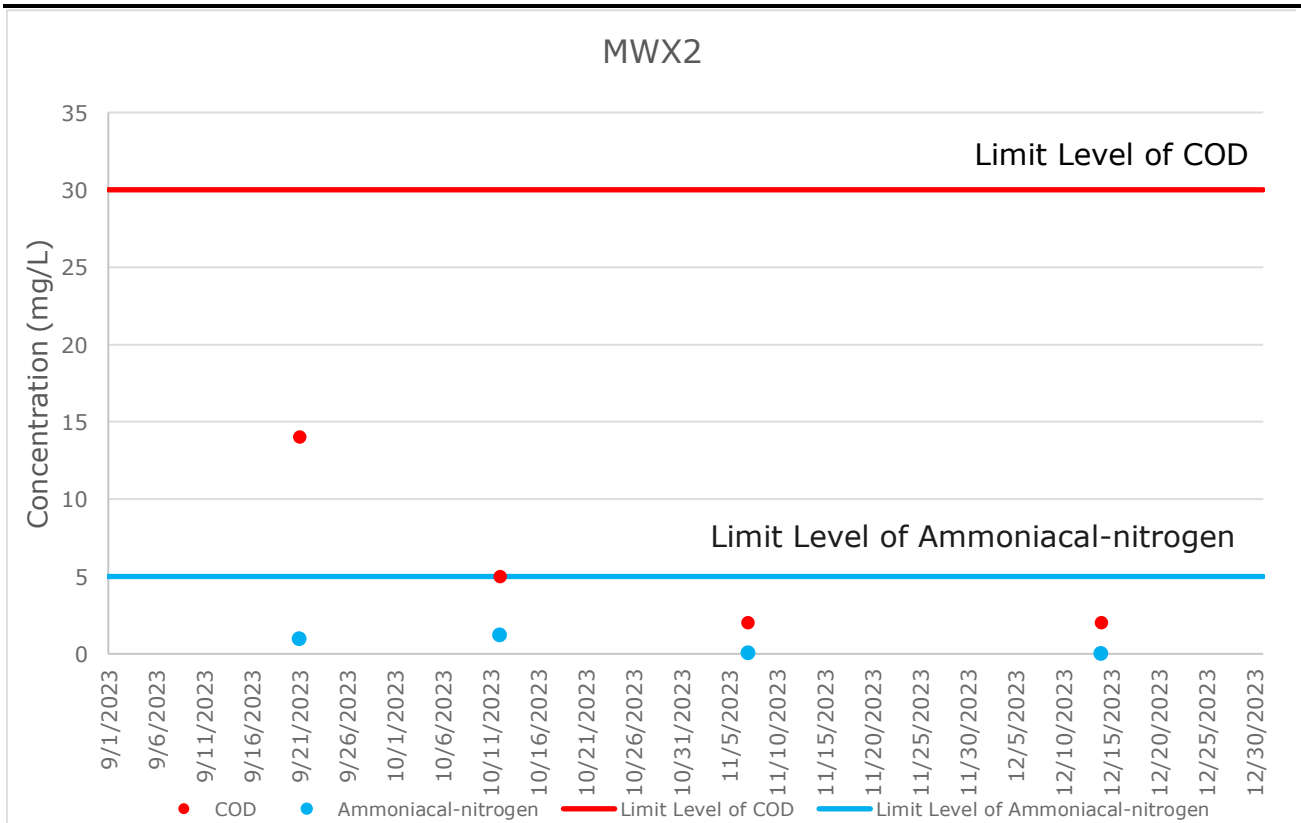


FIGURE F5.3 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-3)

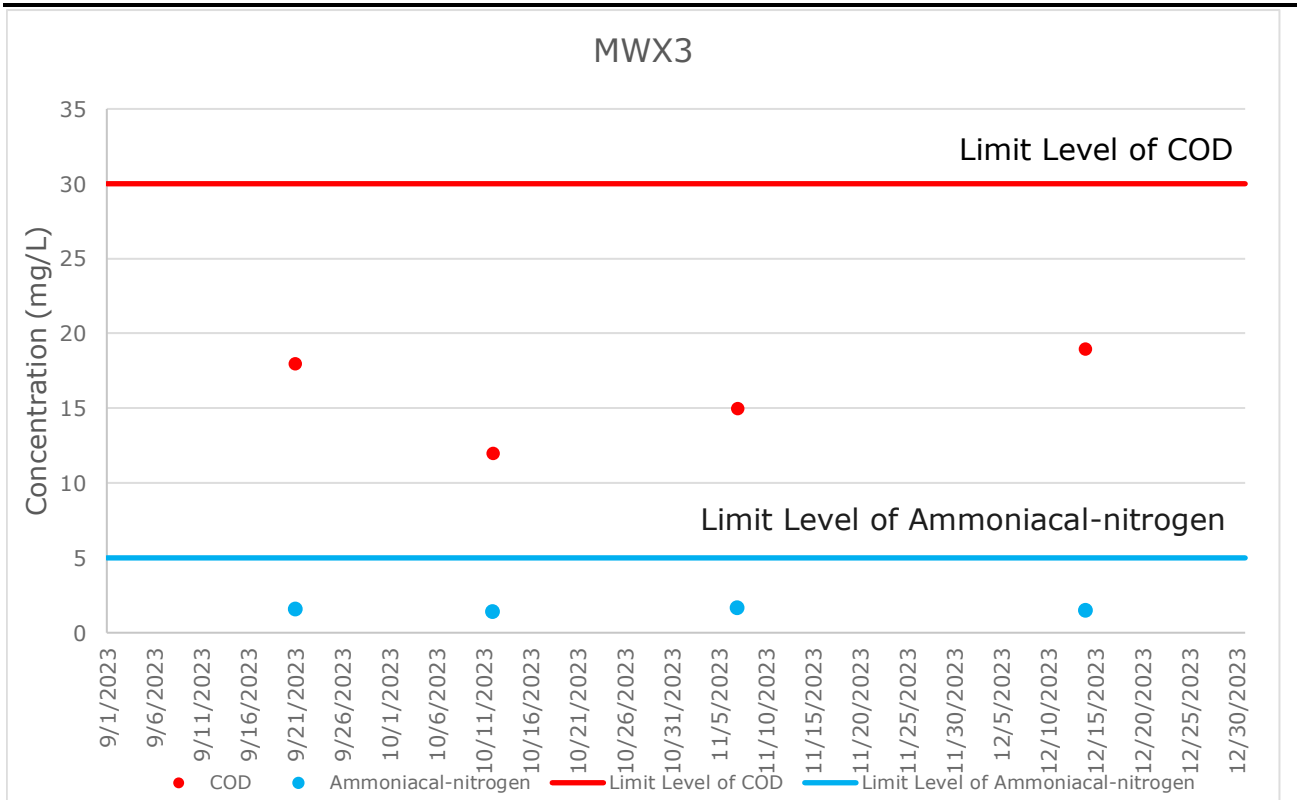


FIGURE F5.4 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-4)

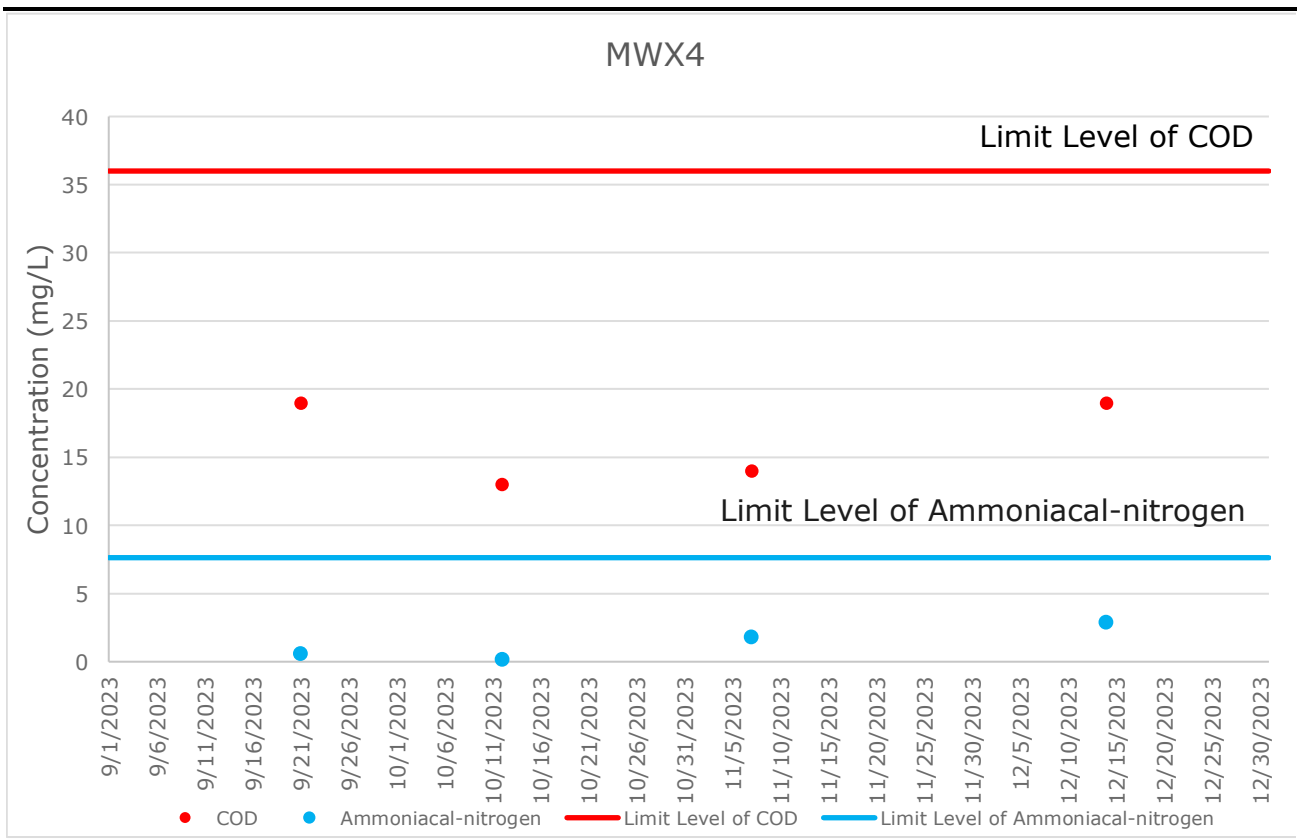


FIGURE F5.5 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-5)

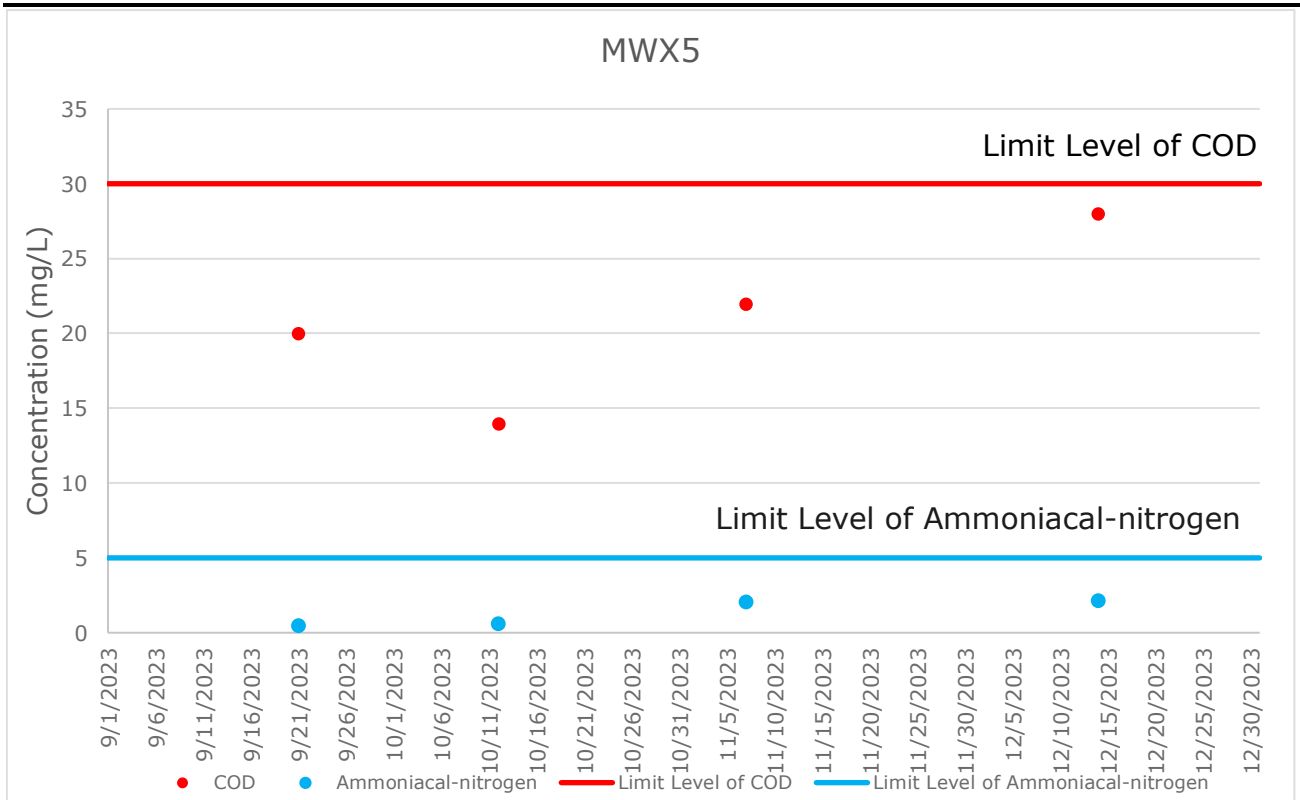


FIGURE F5.6 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-6)

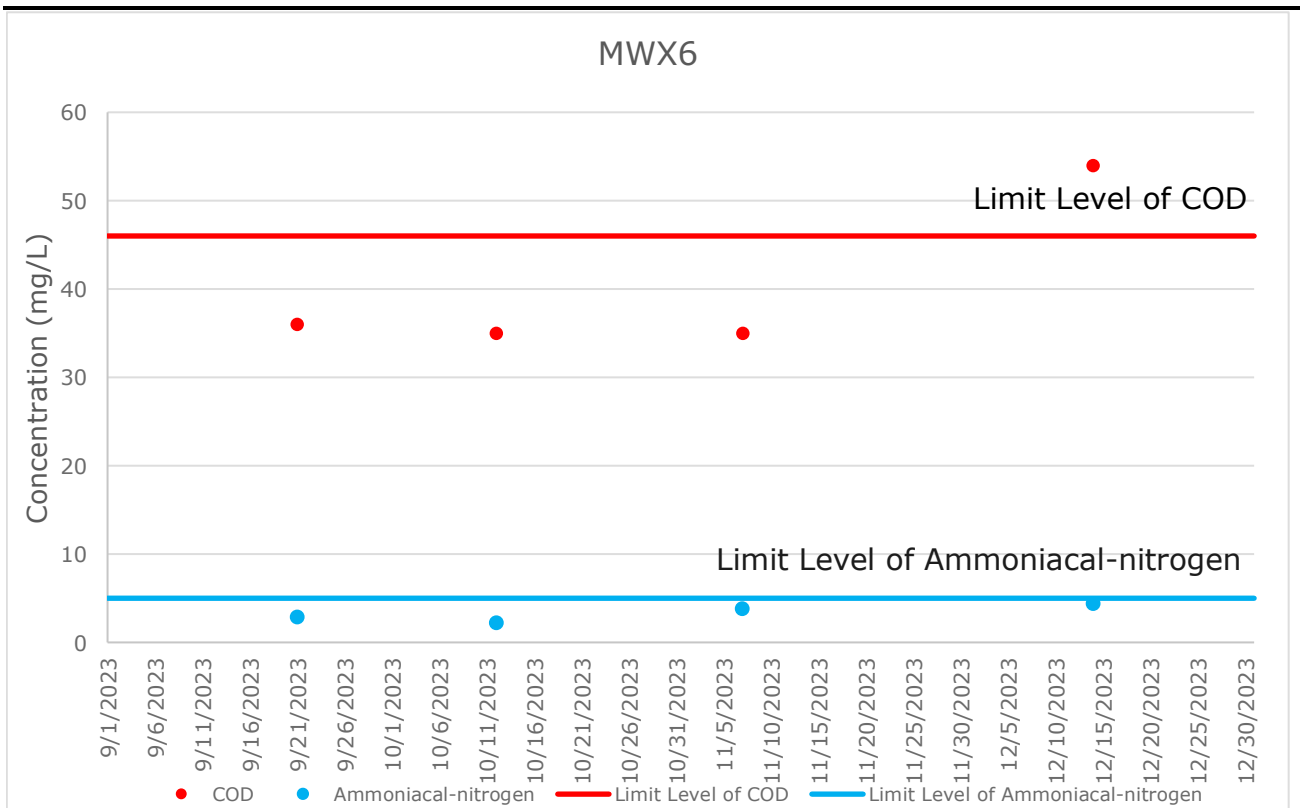


FIGURE F5.7 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-7)

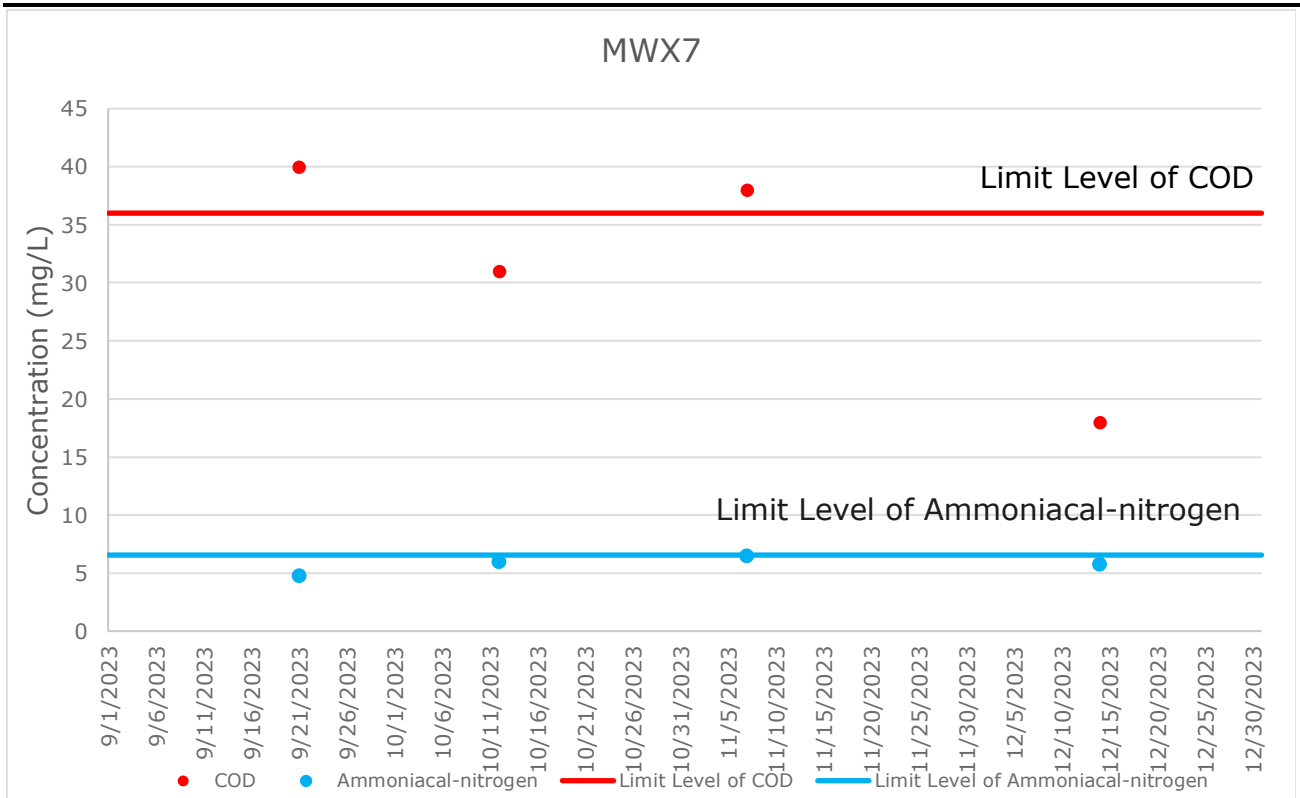


FIGURE F5.8 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-8)

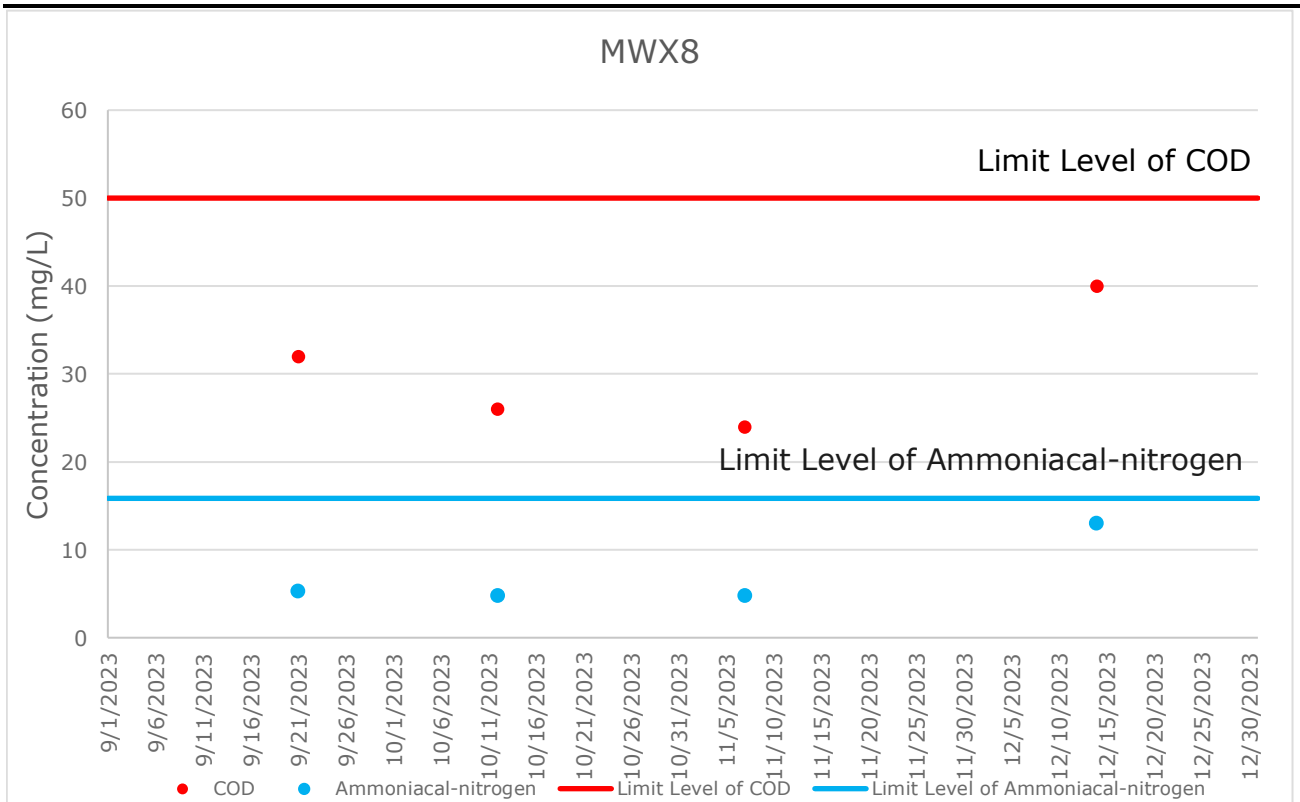


FIGURE F5.9 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-9)

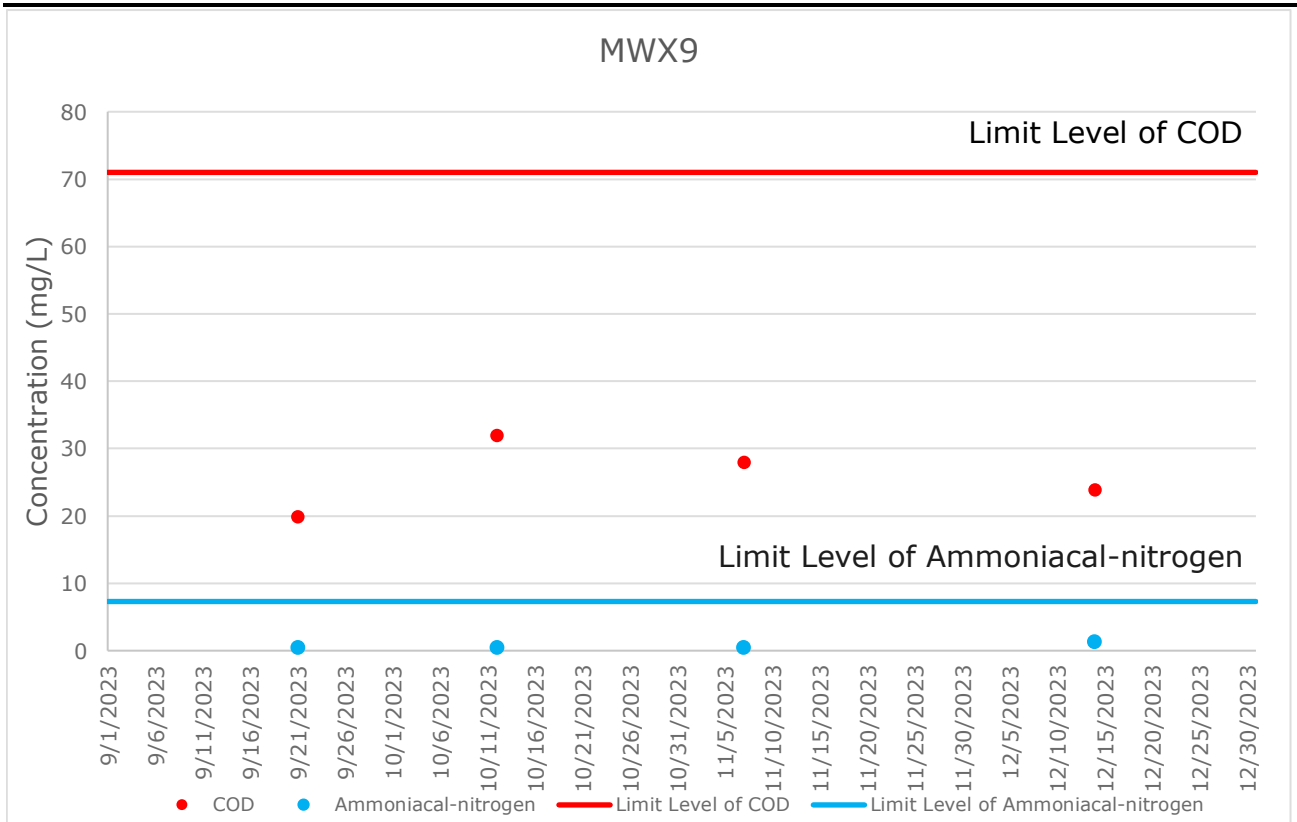


FIGURE F5.10 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-10)

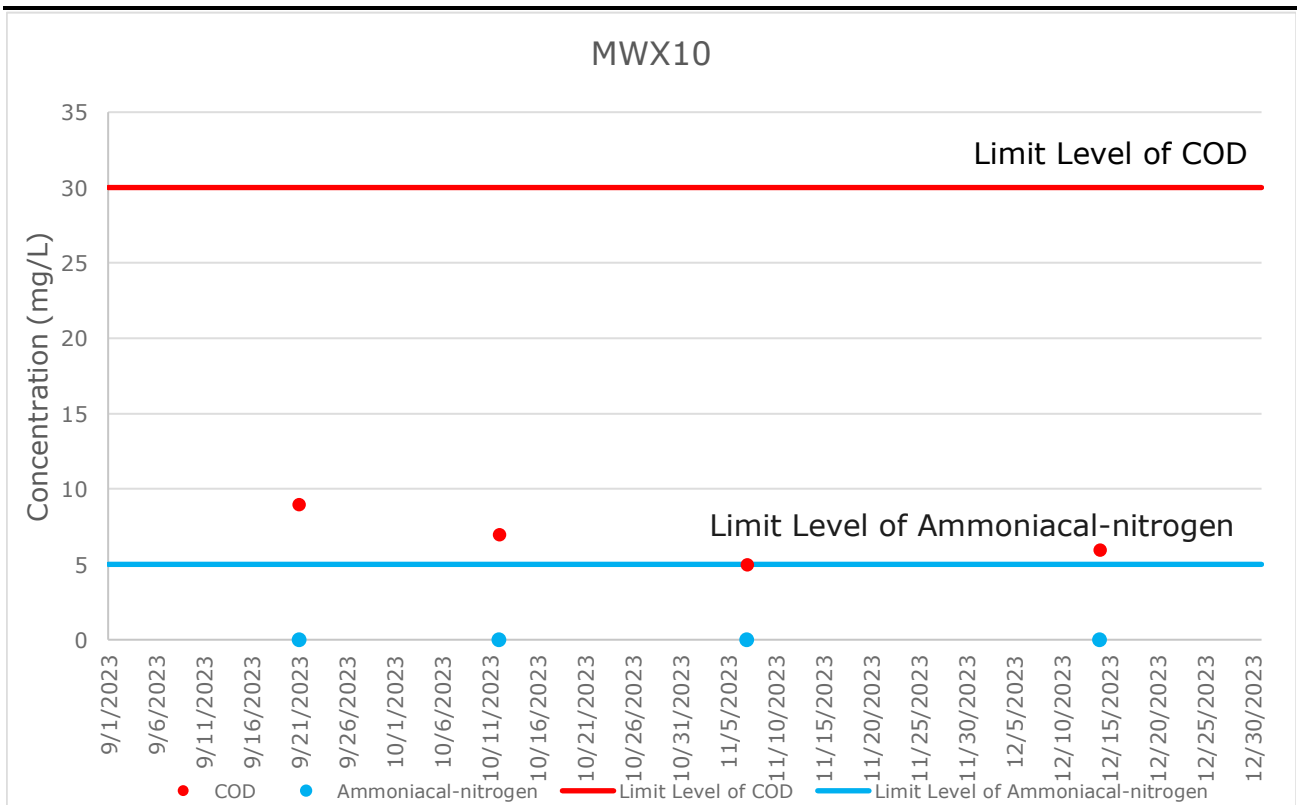


FIGURE F5.11 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-11)

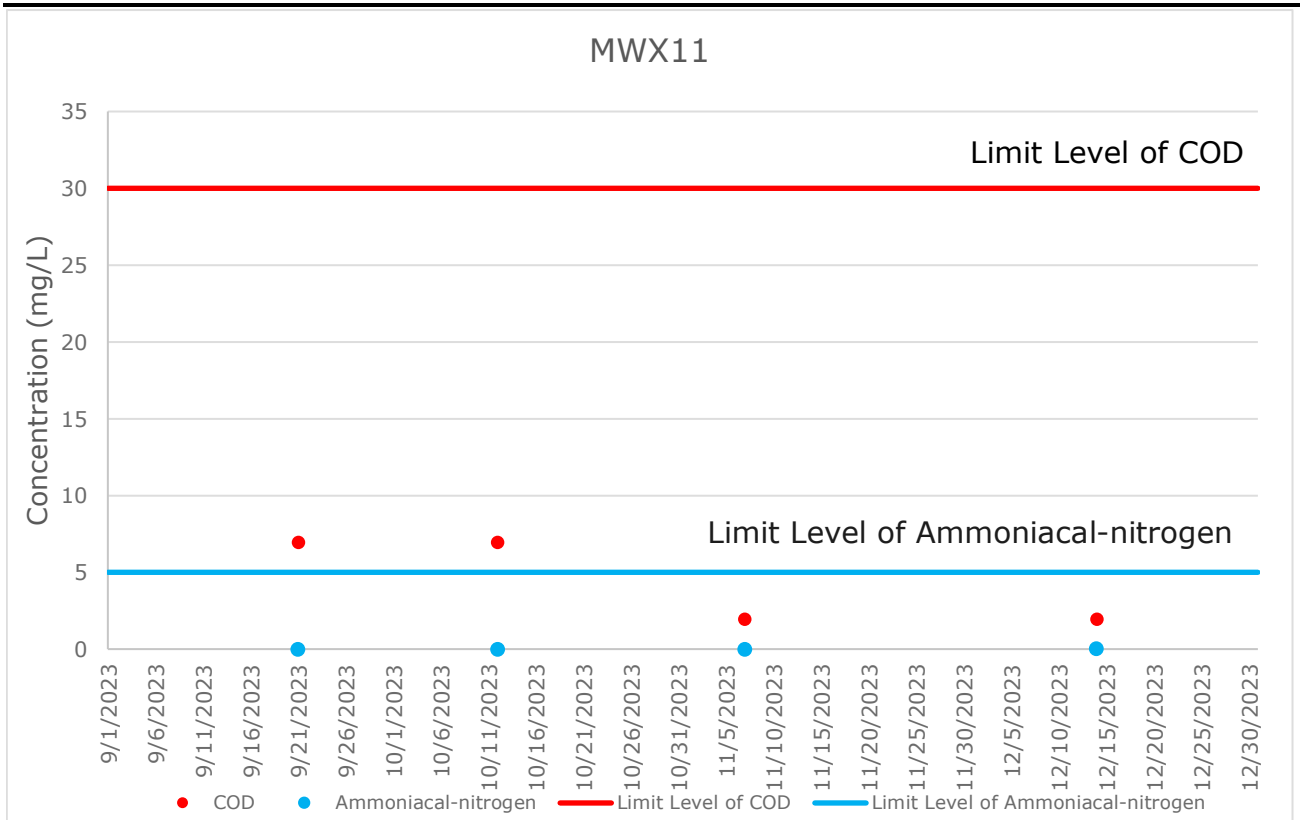


FIGURE F5.12 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-12)

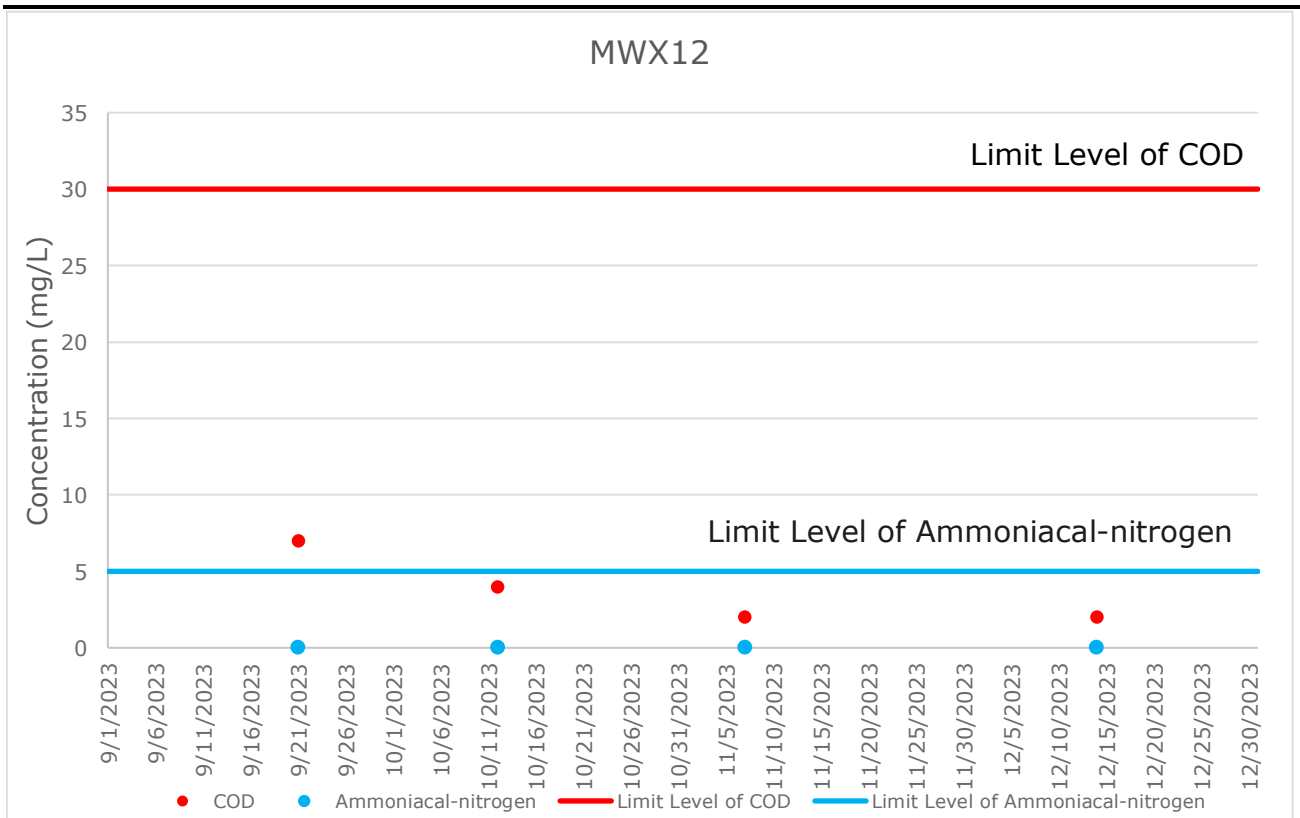


FIGURE F5.13 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-13)

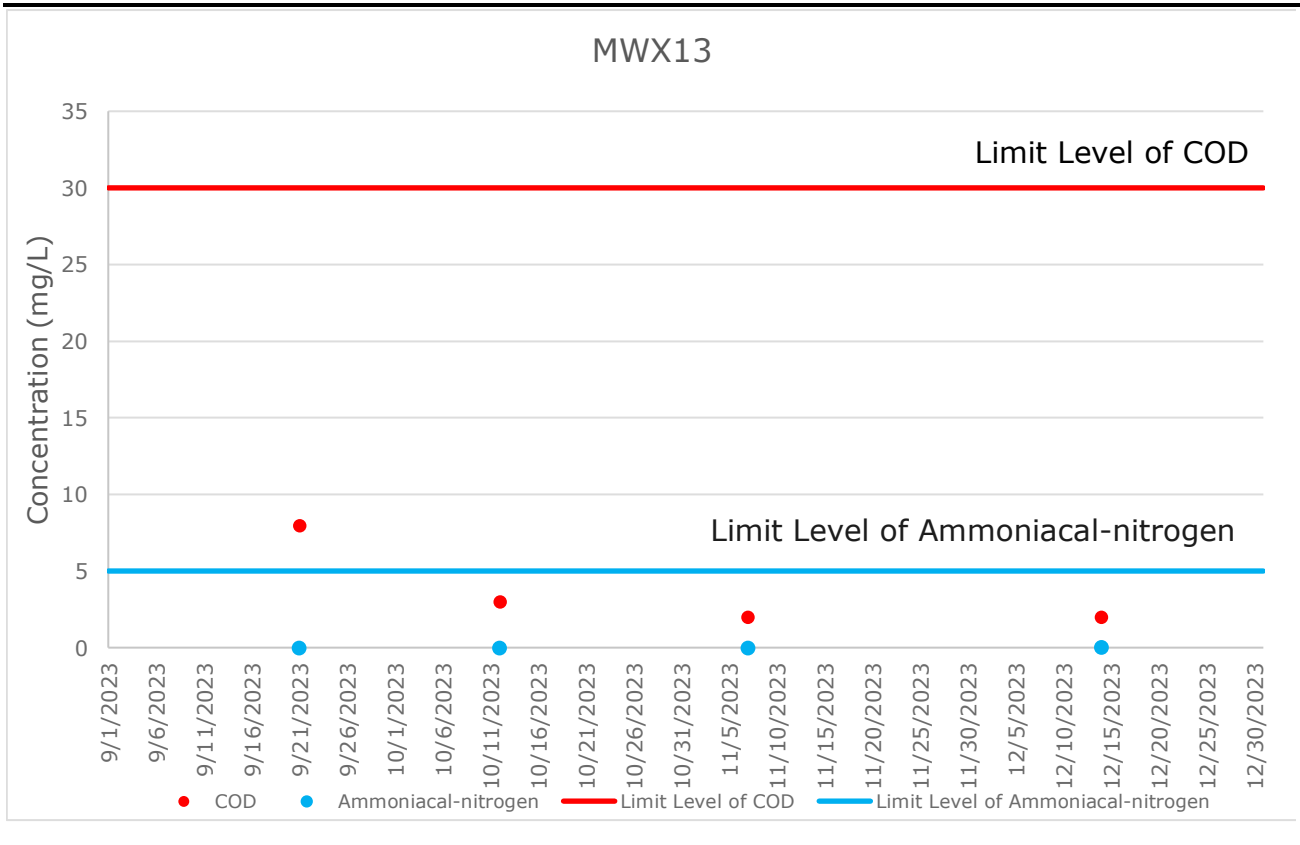


FIGURE F5.14 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-14)

