



ANNEX F5

GROUNDWATER MONITORING RESULTS

**TABLE F5.1 GROUNDWATER MONITORING RESULTS (JANUARY 2024)**

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	2.71	3.01	2.74	2.87	3.22	4.11	2.44	2.66	2.84	3.23	3.27	6.69	36.12	43.71
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	168	268	146	<1	<1	<1	37	<1	164	202	162	56	17	13
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1	60	102	133	37	84	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO <sub>3</sub>	mg/L	168	268	146	61	145	178	74	125	164	202	162	56	17	13
pH Value	pH Unit	7.9	8	8	10.1	11.1	11.2	9.3	10.9	8	7.9	8	6.8	5.7	5.6
Electrical Conductivity	µS/cm	1220	1010	1100	823	1170	1170	2180	3660	15800	788	410	300	93	101
Ammonia	mg/L	0.03	0.01	1.48	3.58	2.31	3.86	5.74	15	0.46	0.03	0.06	<0.01	<0.01	<0.01
Chloride	mg/L	252	40	212	165	201	204	621	1250	5090	96	26	20	15	19
Nitrite	mg/L	<0.01	0.02	<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	0.05	0.02	<0.01	0.04	0.01	<0.01
Sulphate	mg/L	76	231	81	78	104	87	48	53	878	67	14	58	3	3
Sulphide	mg/L	<0.1	<0.1	<0.1	4.5	8.2	14.5	2	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.1	<1.0	1.8	3.9	3	5	6.1	15.3	0.7	<0.1	0.2	<0.1	<0.1	<0.1
Nitrate	mg/L	0.01	5.39	0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.1	0.13
Total Nitrogen	mg/L	180	220	200	200	180	170	590	420	2530	170	70	30	20	20
Boron	µg/L	78.6	87.6	85.4	29.1	41.3	35.9	26	125	155	82.1	53.2	27.2	0.95	1.27
Calcium	mg/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
Mercury	µg/L	12.6	61.5	5.73	0.16	<0.05	<0.05	4.35	<0.05	266	7.29	3.2	4.3	1.04	0.94

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	143	57.6	124	120	157	162	393	614	2450	80.2	26.4	23.8	12.9	13.6
Sodium	mg/L	0.06	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.45	<0.04	<0.04
Iron	mg/L	24.2	16.5	30.6	29	62.4	61.8	57.2	77.2	119	11.2	7.33	3.08	4.15	3.91
Potassium	mg/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
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2
Copper	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	µg/L	411	172	908	2	<1	<1	<1	<1	236	1360	446	699	12	7
Manganese	µg/L	<1	<1	<1	<1	1	2	<1	1	<1	<1	<1	<1	<1	<1
Nickel	µg/L	<10	<10	<10	<10	<10	<10	15	<10	<10	<10	<10	23	43	18
Zinc	µg/L	180	220	200	200	180	170	590	420	2530	170	70	30	20	20
Biochemical Oxygen Demand	mg/L	<2	<2	<2	2	5	10	<2	7	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	8	4	18	23	28	49	15	50	<20	4	3	<2	<2	<2
Total Organic Carbon	mg/L	5	2	8	6	5	7	2	9	<1	1	2	1	1	<1

**TABLE F5.2 GROUNDWATER MONITORING RESULTS (FEBRUARY 2024)**

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	3.51	2.61	2.64	2.47	3.42	2.71	2.44	3.26	2.84	2.73	3.07	6.49	35.92	41.81
Bicarbonate Alkalinity as CaCO3	mg/L	168	276	137	6	<1	<1	64	<1	141	211	167	55	17	12
Carbonate Alkalinity as CaCO3	mg/L	<1	<1	<1	48	84	144	18	92	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO3	mg/L	168	276	137	54	101	177	82	124	141	211	167	55	17	12
pH Value	pH Unit	7.8	8	7.8	10	10.9	11.3	8.9	10.8	8	7.9	8	7	5.9	5.8
Electrical Conductivity	µS/cm	1350	992	1060	840	1270	1150	2190	3680	10200	938	414	295	93	98
Ammonia	mg/L	0.1	0.01	1.38	3.78	2.69	4.58	5.11	14.4	1.02	<0.01	0.05	<0.01	0.02	<0.01
Chloride	mg/L	270	39	204	174	235	197	609	1140	3270	132	24	19	14	17
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	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.05	0.02	<0.01	0.03	<0.01	<0.01
Sulphate	mg/L	73	202	71	75	123	73	47	48	590	73	14	54	3	3
Sulphide	mg/L	<0.1	<0.1	<0.1	3.6	6.3	15	1.7	14.9	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.2	<1.0	1.9	4.2	3.3	5.5	5.9	15.9	1.2	0.1	0.1	0.1	<0.1	<0.1
Nitrate	mg/L	<0.01	5.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	0.1
Total Nitrogen	mg/L	0.2	5.2	1.9	4.2	3.3	5.5	5.9	15.9	1.2	0.1	0.1	0.1	0.2	0.1
Boron	µg/L	220	250	240	220	230	200	700	520	1940	160	60	20	10	10
Calcium	mg/L	72.6	68.4	62.9	26	37	35.8	27.1	103	118	71.4	54.8	26.4	0.97	1.5
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	12.6	52.7	4.64	0.16	<0.05	<0.05	6.68	<0.05	152	9.51	3.32	4.22	1.07	0.97
Sodium	mg/L	159	50.6	114	114	170	155	335	567	1860	93.2	30.4	26	13.9	14.8
Iron	mg/L	<0.04	<0.04	0.07	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.4	<0.04	<0.04
Potassium	mg/L	23.1	16.6	25.3	26.4	55.9	54.8	44.4	66.1	92.4	9.95	7.36	3.05	4.12	3.83
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	2
Lead	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	µg/L	784	208	766	1	<1	<1	2	<1	251	2130	390	652	12	8
Nickel	µg/L	<1	<1	<1	<1	<1	2	<1	1	<1	<1	<1	<1	<1	<1
Zinc	µg/L	180	<10	<10	<10	<10	<10	<10	<10	469	<10	<10	14	31	20
Biochemical Oxygen Demand	mg/L	<2	<2	<2	7	4	13	<2	12	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	6	3	18	21	28	53	10	42	<20	5	4	3	3	2
Total Organic Carbon	mg/L	4	1	8	6	5	9	3	8	<5	3	1	2	<1	1

**TABLE F5.3 GROUNDWATER MONITORING RESULTS (MARCH 2024)**

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	2.41	2.91	2.74	2.37	3.02	2.91	2.04	2.86	2.64	2.53	2.67	6.29	36.02	41.61
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	164	270	137	<1	<1	<1	74	<1	163	204	170	57	17	13
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1	65	72	146	12	89	<1	<1	<1	<1	<1	<1
Total Alkalinity as CaCO <sub>3</sub>	mg/L	164	270	137	65	77	172	86	113	163	204	170	57	17	13
pH Value	pH Unit	7.7	8.1	8.1	10.3	10.7	11.3	8.7	10.7	7.9	7.9	7.7	6.9	5.7	5.7
Electrical Conductivity	µS/cm	1480	981	1060	920	1750	1140	2180	3700	3620	1060	1190	293	92	100
Ammonia	mg/L	0.61	0.03	1.57	4.54	2.82	5.74	5.72	15.6	0.85	<0.01	0.07	0.01	<0.01	<0.01
Chloride	mg/L	337	45	210	209	431	212	547	1090	1000	167	215	20	14	18
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	0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	0.03	<0.01	0.03	<0.01	<0.01
Sulphate	mg/L	80	186	61	63	124	63	49	45	248	77	63	54	3	4
Sulphide	mg/L	<0.1	<0.1	0.1	4.9	5.8	15.5	1.8	12.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.8	<1.0	1.7	5	3.2	5.8	6.4	16	1.1	<0.1	0.4	<0.1	<0.1	<0.1
Nitrate	mg/L	0.21	4.06	0.02	<0.01	0.01	0.01	<0.01	0.02	0.01	0.01	<0.01	<0.01	0.08	0.08
Total Nitrogen	mg/L	1	4.5	1.7	5	3.2	5.8	6.4	16	1.1	<0.1	0.4	<0.1	<0.1	0.2
Boron	µg/L	230	250	220	190	220	180	720	510	780	180	120	20	10	10
Calcium	mg/L	67.3	68.3	58.3	30.7	47.5	32.2	23	92.1	109	74.7	94.2	22.4	0.76	0.96
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	13.9	54.7	3.91	0.08	0.12	<0.05	7.84	<0.05	29.6	9.28	5.9	3.63	0.92	0.81
Sodium	mg/L	183	52.2	114	120	246	154	322	598	588	105	120	24	20.9	13.1
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	0.31	<0.04	<0.04
Potassium	mg/L	23.1	14.2	25.4	30.5	50.7	53.1	41	64	49.5	11.3	9.76	2.69	3.66	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	2	<1	<1	1	<1
Lead	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	µg/L	2220	228	772	<1	<1	<1	2	<1	460	2520	632	651	10	8
Nickel	µg/L	<1	<1	<1	1	<1	2	<1	1	<1	<1	<1	<1	<1	<1
Zinc	µg/L	<10	<10	168	<10	<10	<10	<10	<10	<10	11	<10	581	22200	24
Biochemical Oxygen Demand	mg/L	<2	<2	<2	3	3	13	<2	9	<2	<2	<2	<2	<2	<2
Chemical Oxygen Demand	mg/L	5	3	18	25	21	53	14	51	24	3	5	3	3	4
Total Organic Carbon	mg/L	3	<1	8	8	7	12	3	12	7	1	3	2	2	2

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

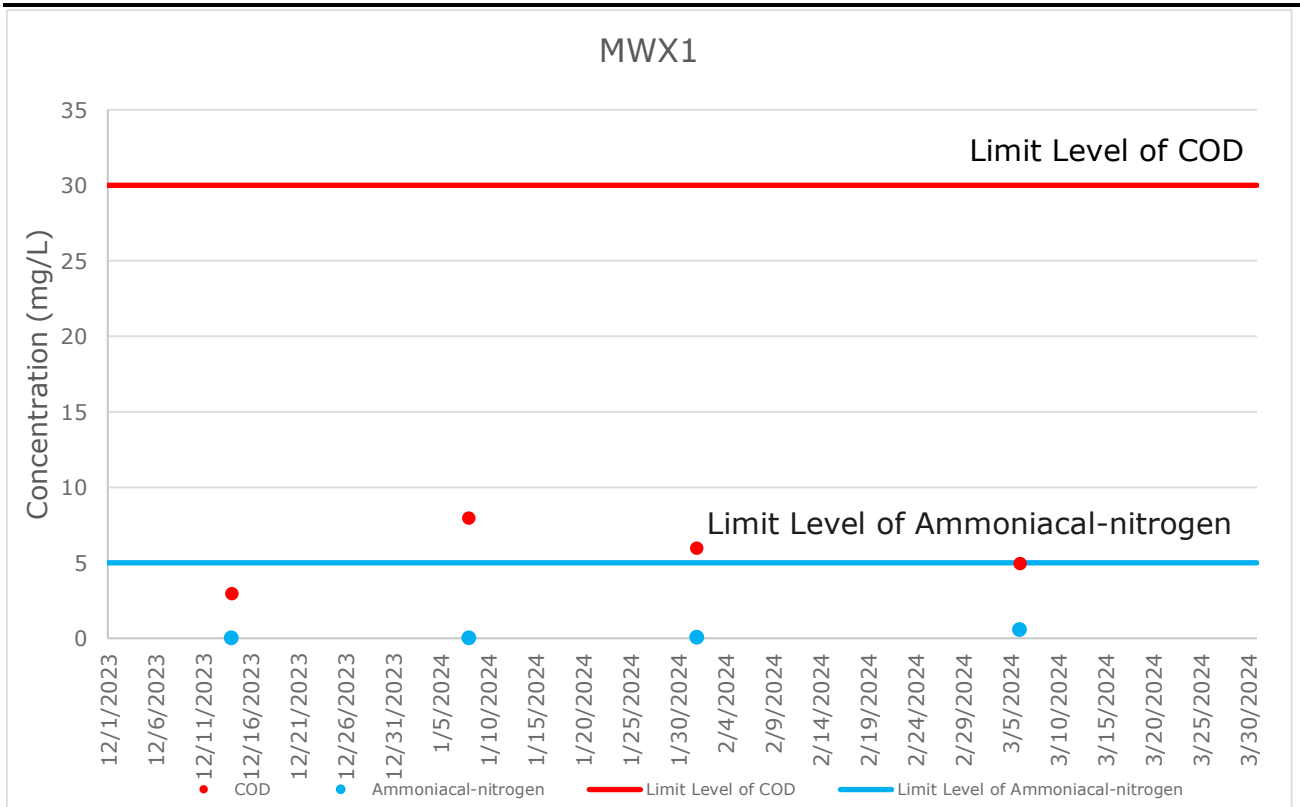


FIGURE F5.2 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-2)

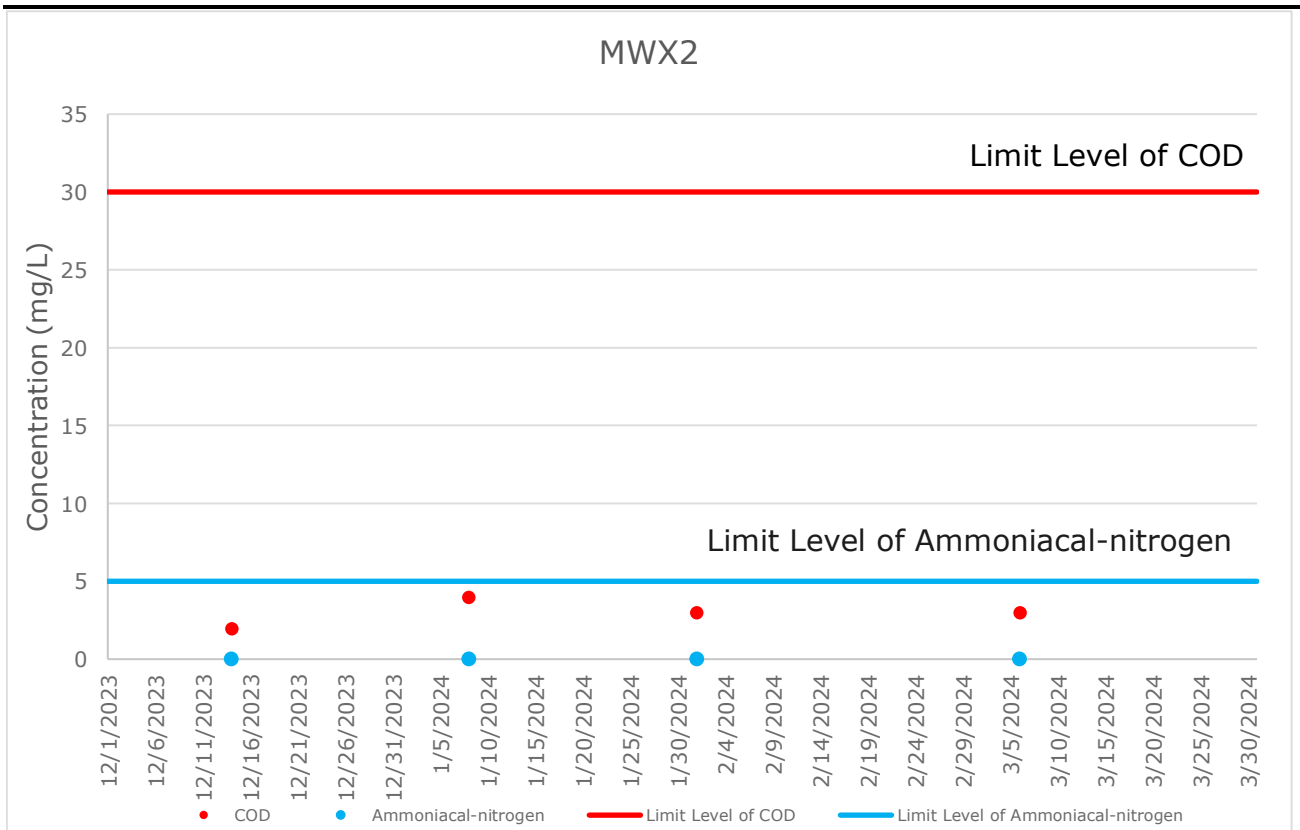




FIGURE F5.3 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-3)

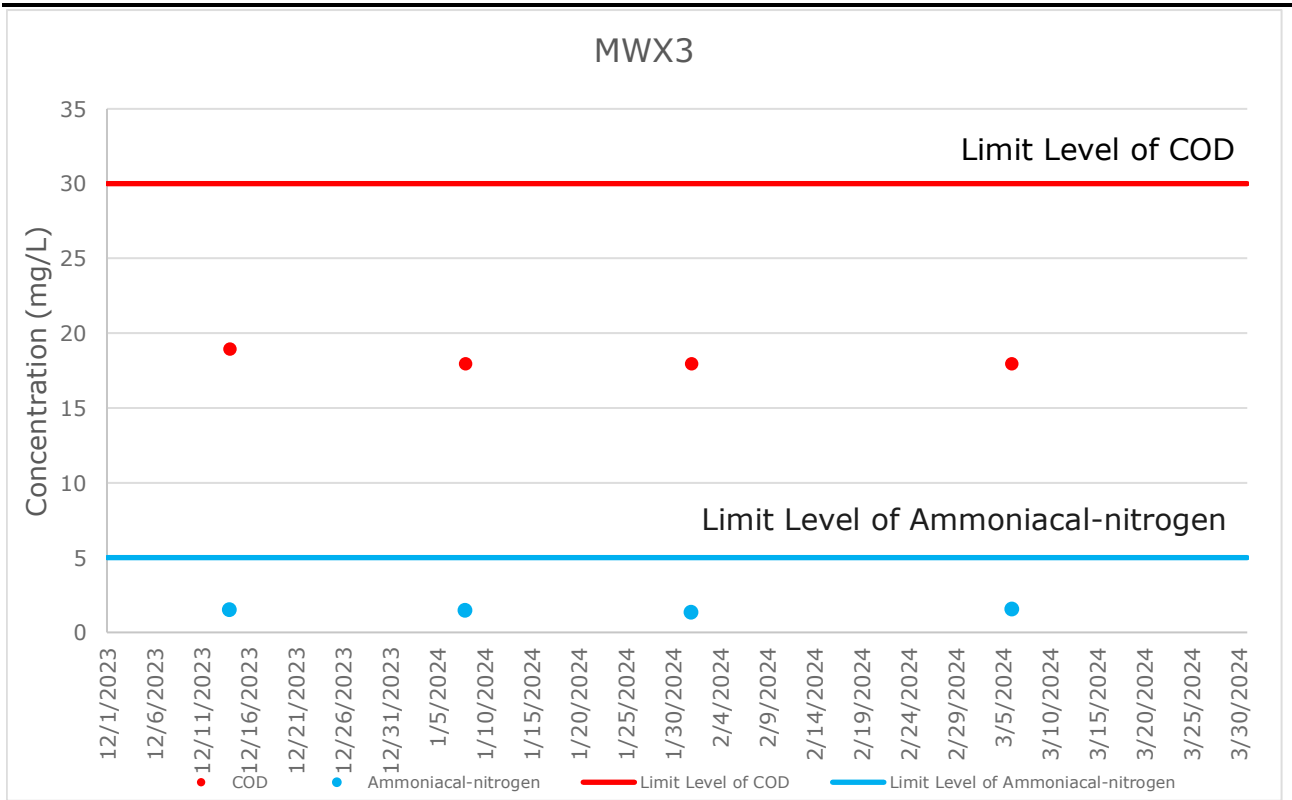


FIGURE F5.4 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-4)

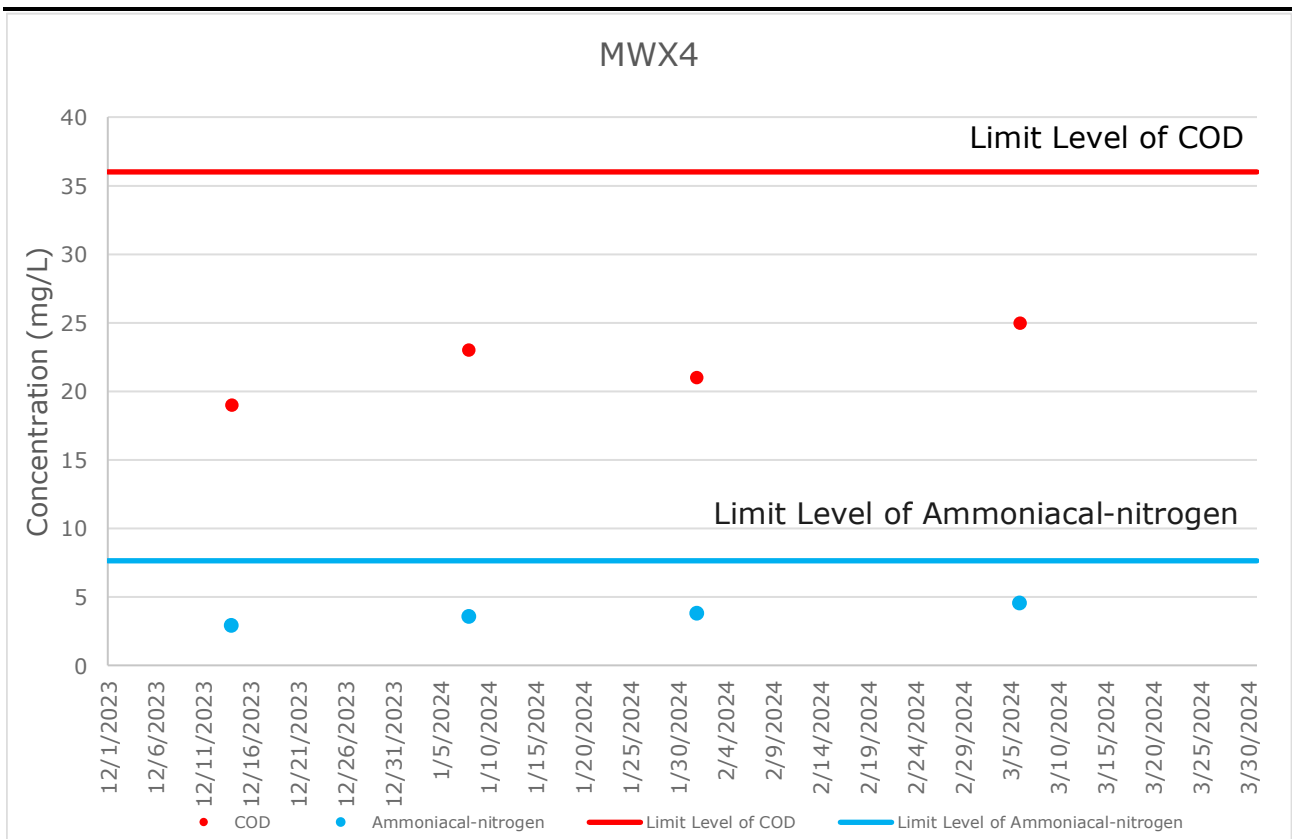


FIGURE F5.5 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-5)

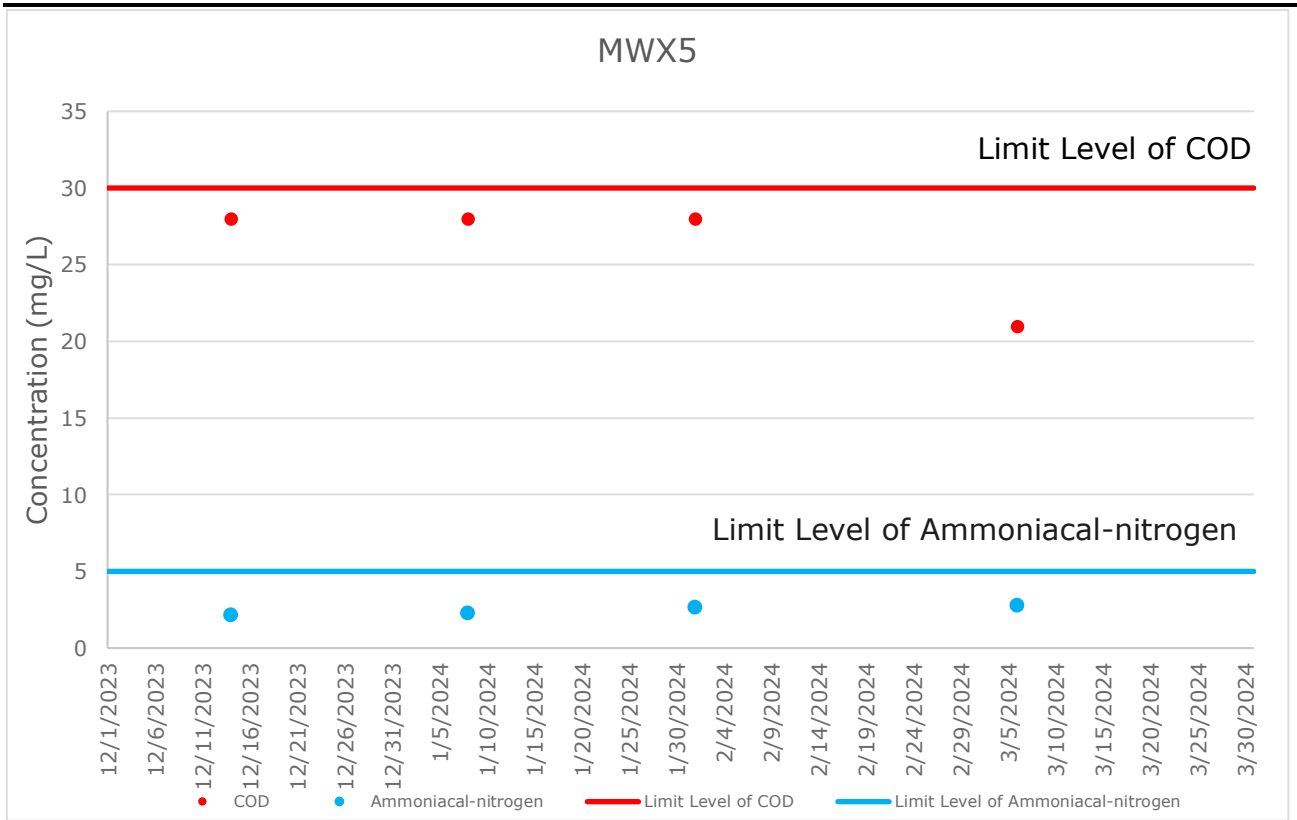


FIGURE F5.6 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-6)

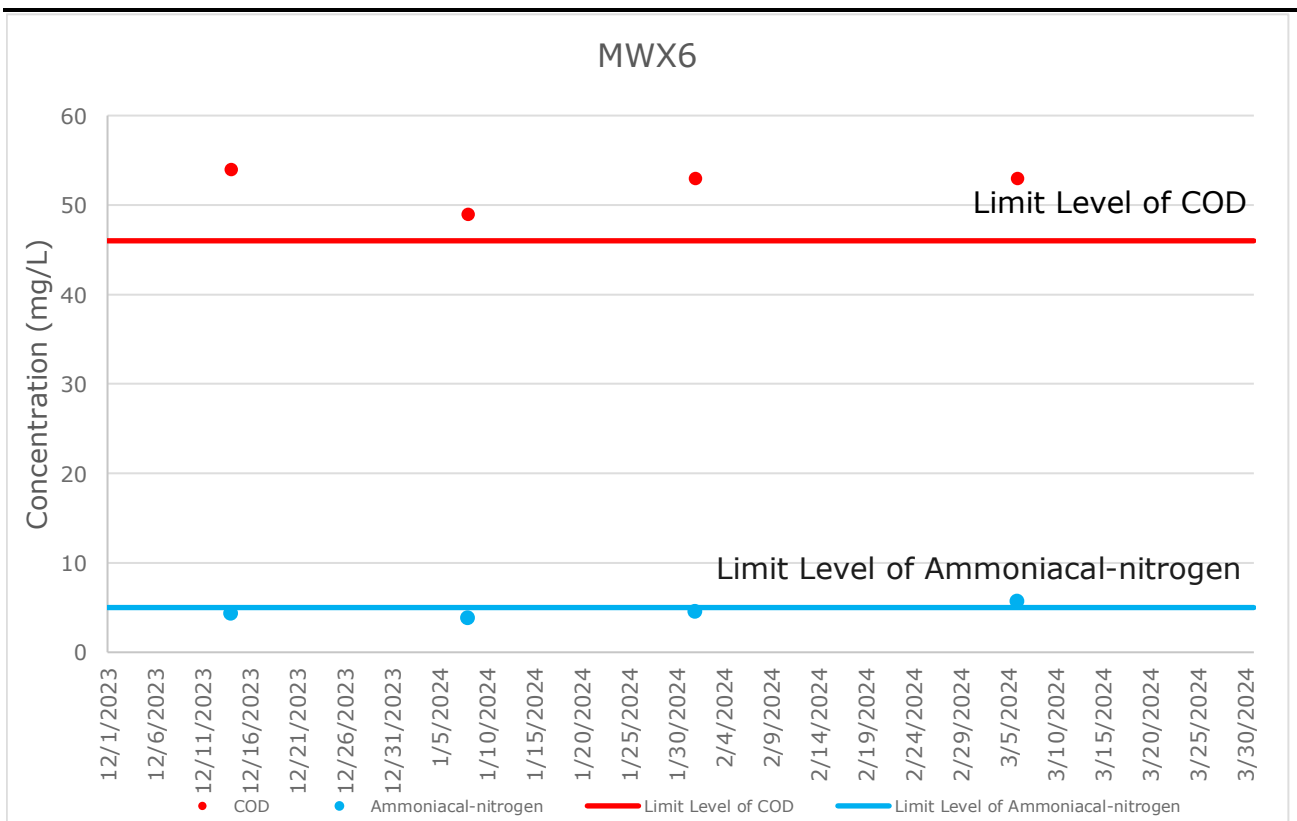


FIGURE F5.7 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-7)

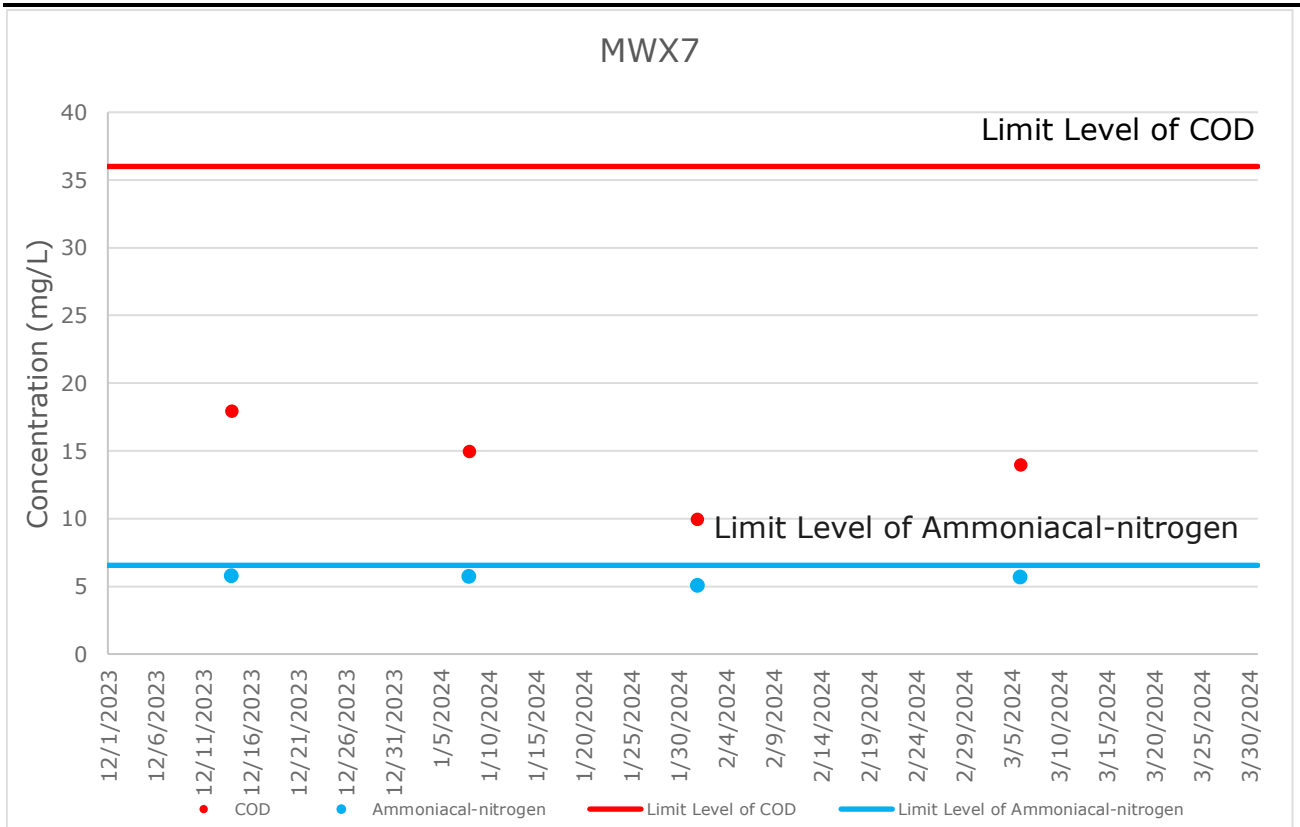


FIGURE F5.8 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-8)

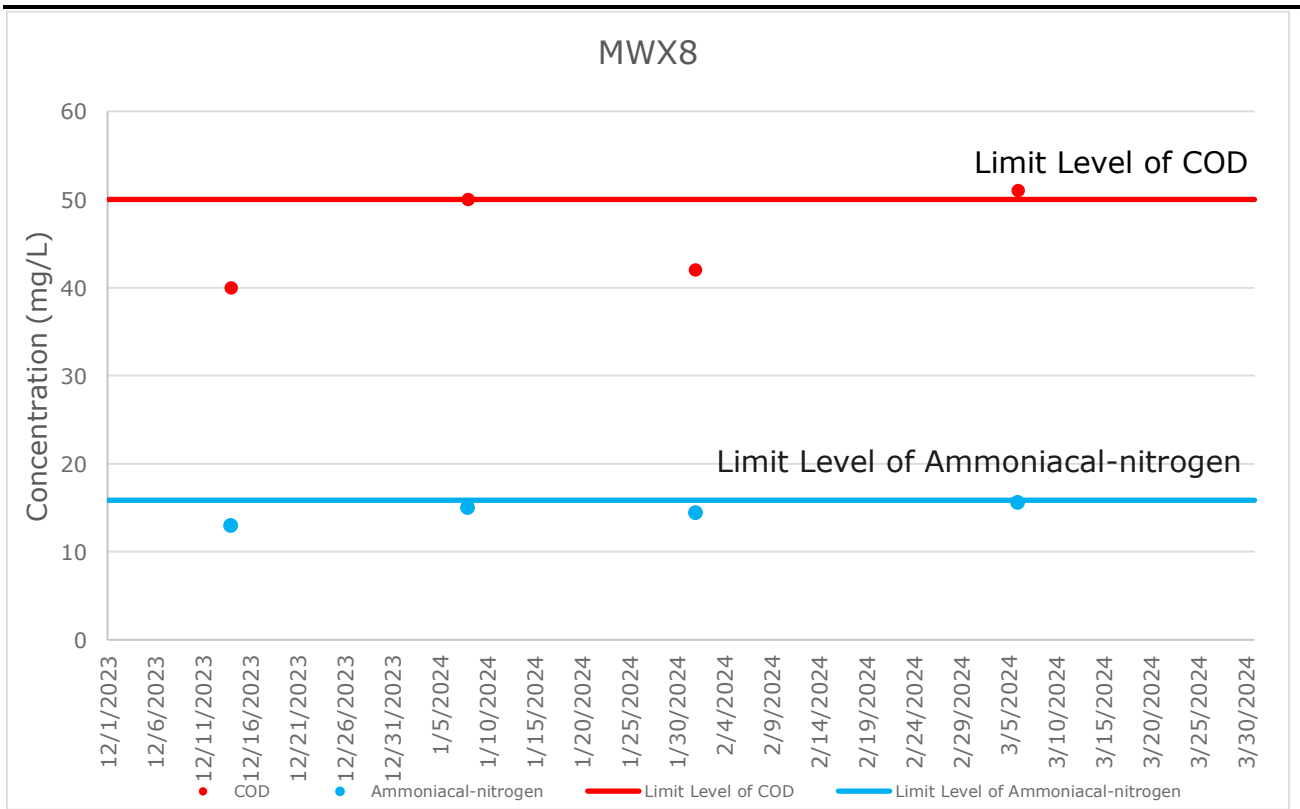


FIGURE F5.9 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-9)

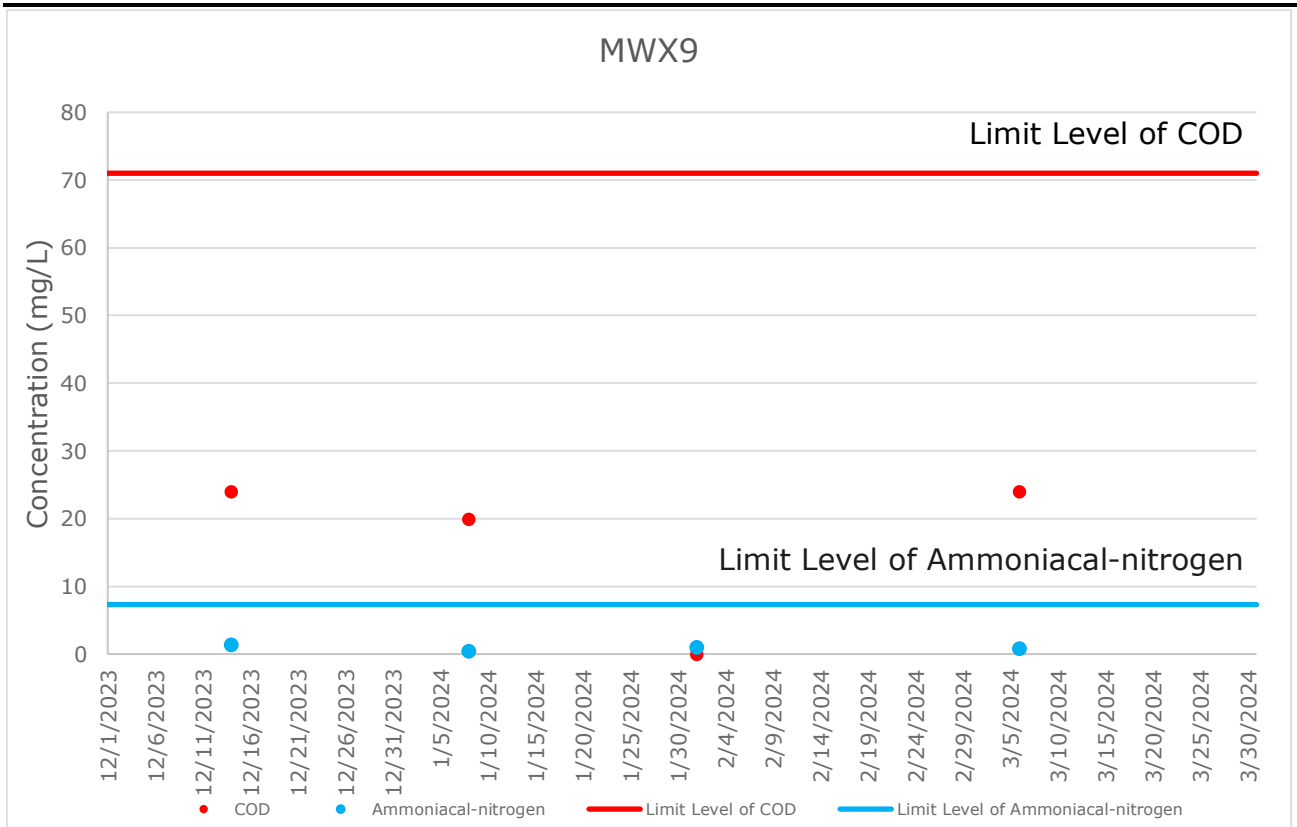


FIGURE F5.10 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-10)

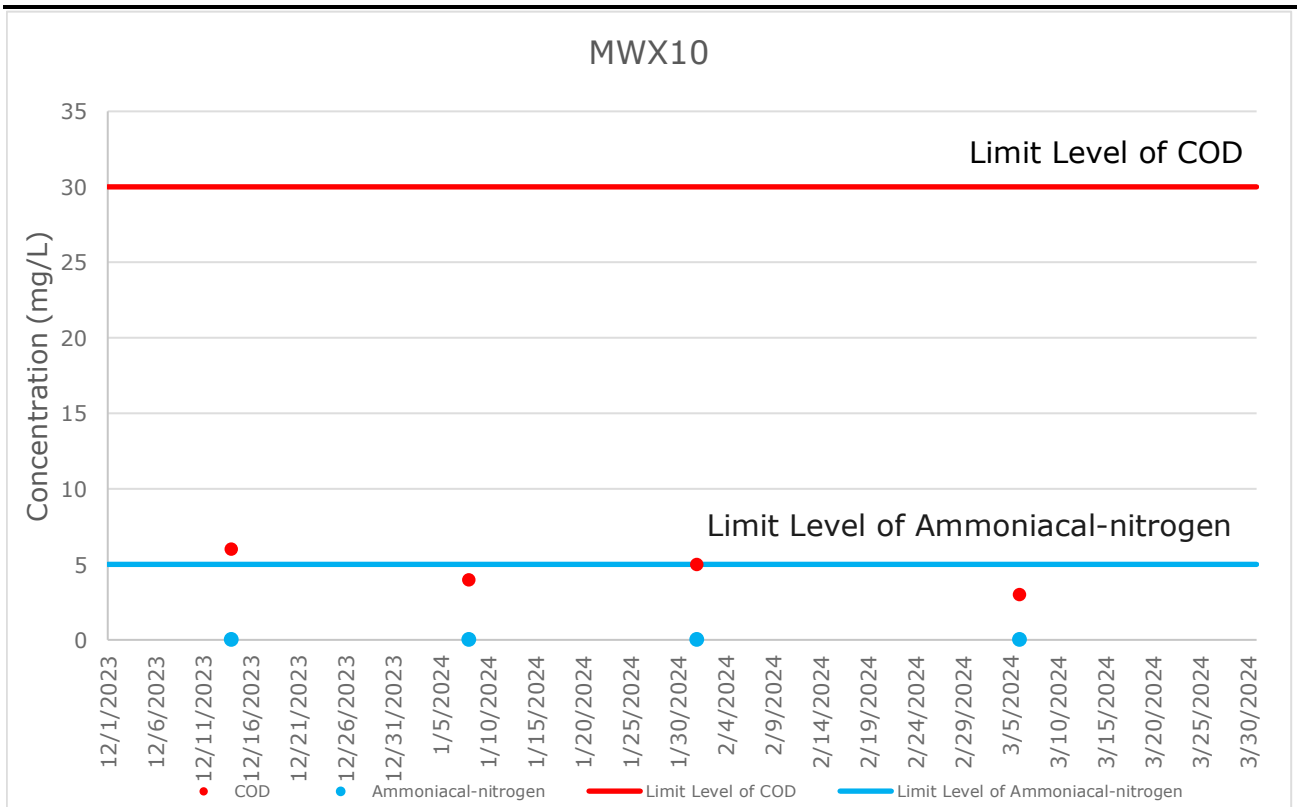


FIGURE F5.11 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-11)

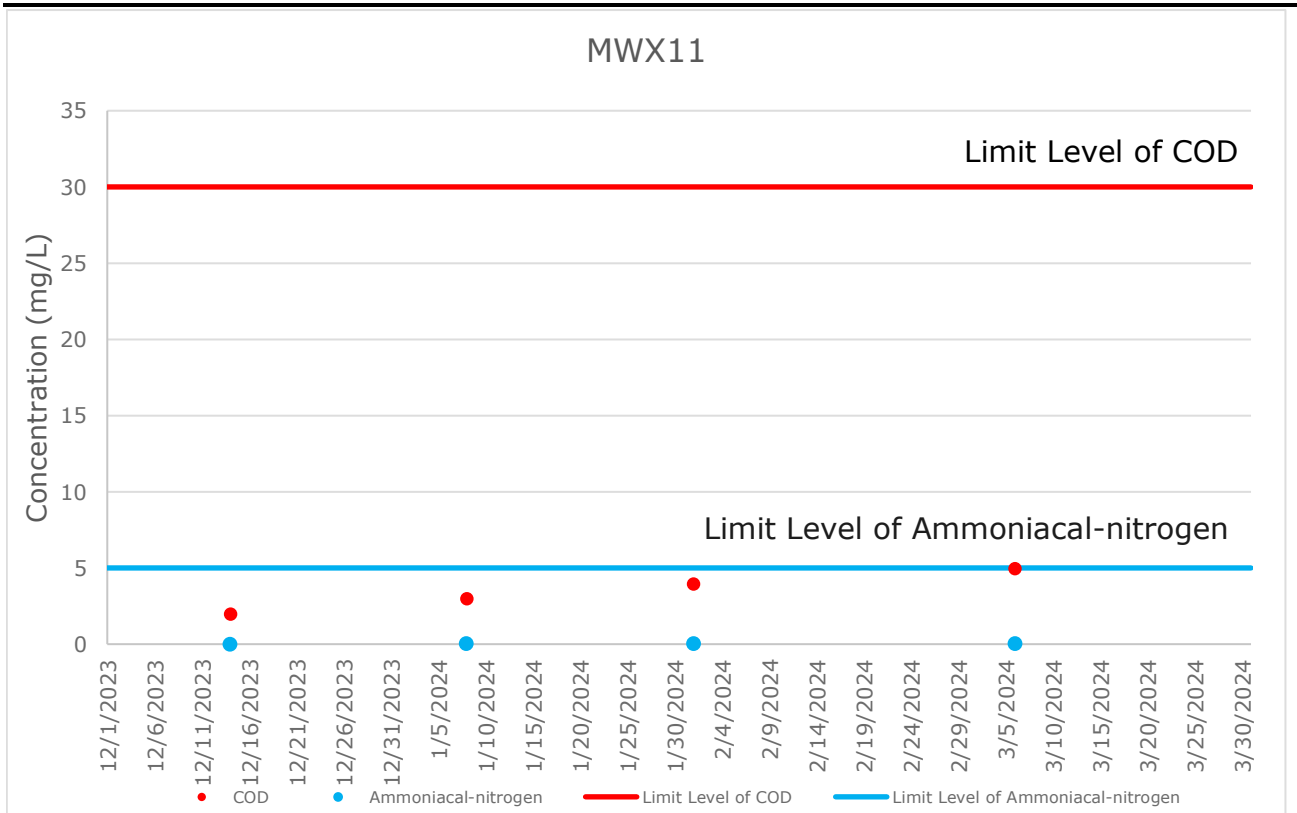


FIGURE F5.12 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-12)

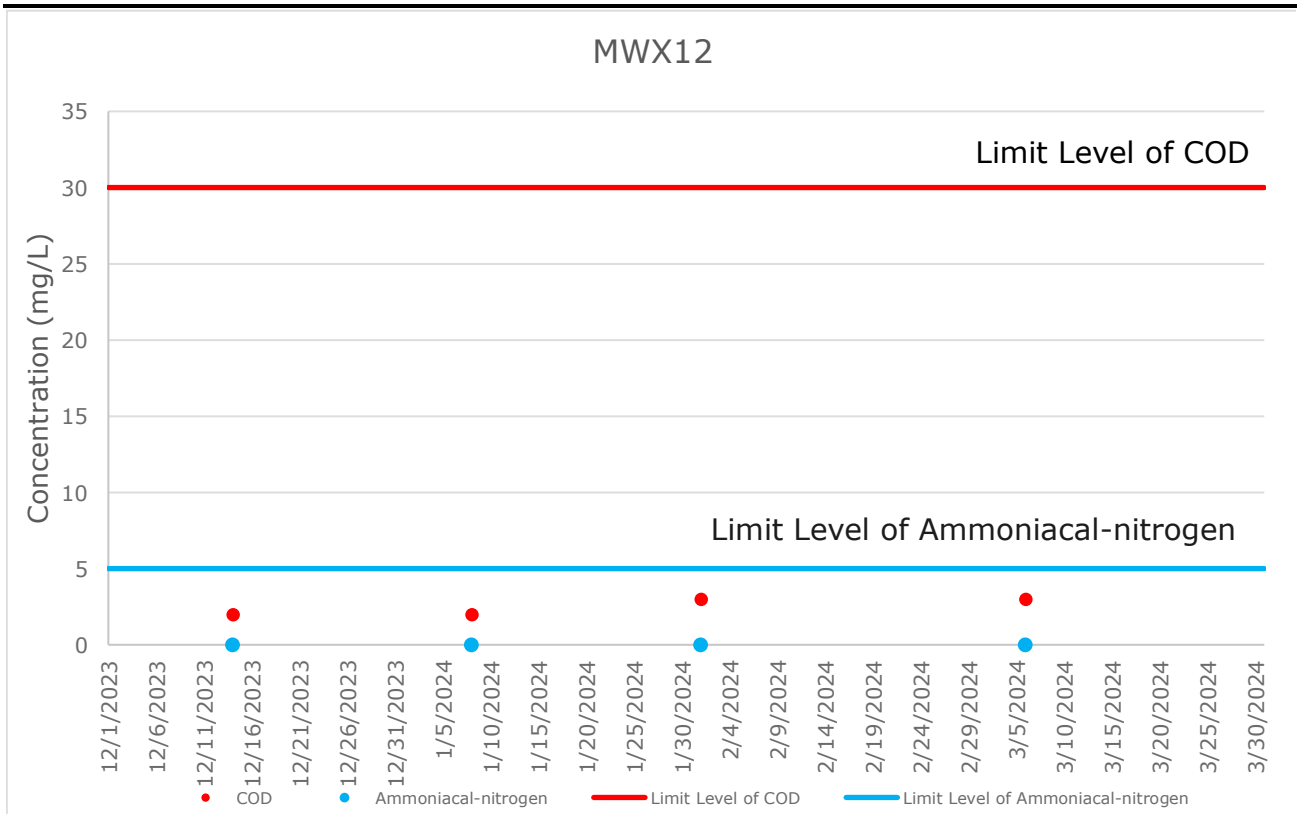


FIGURE F5.13 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-13)

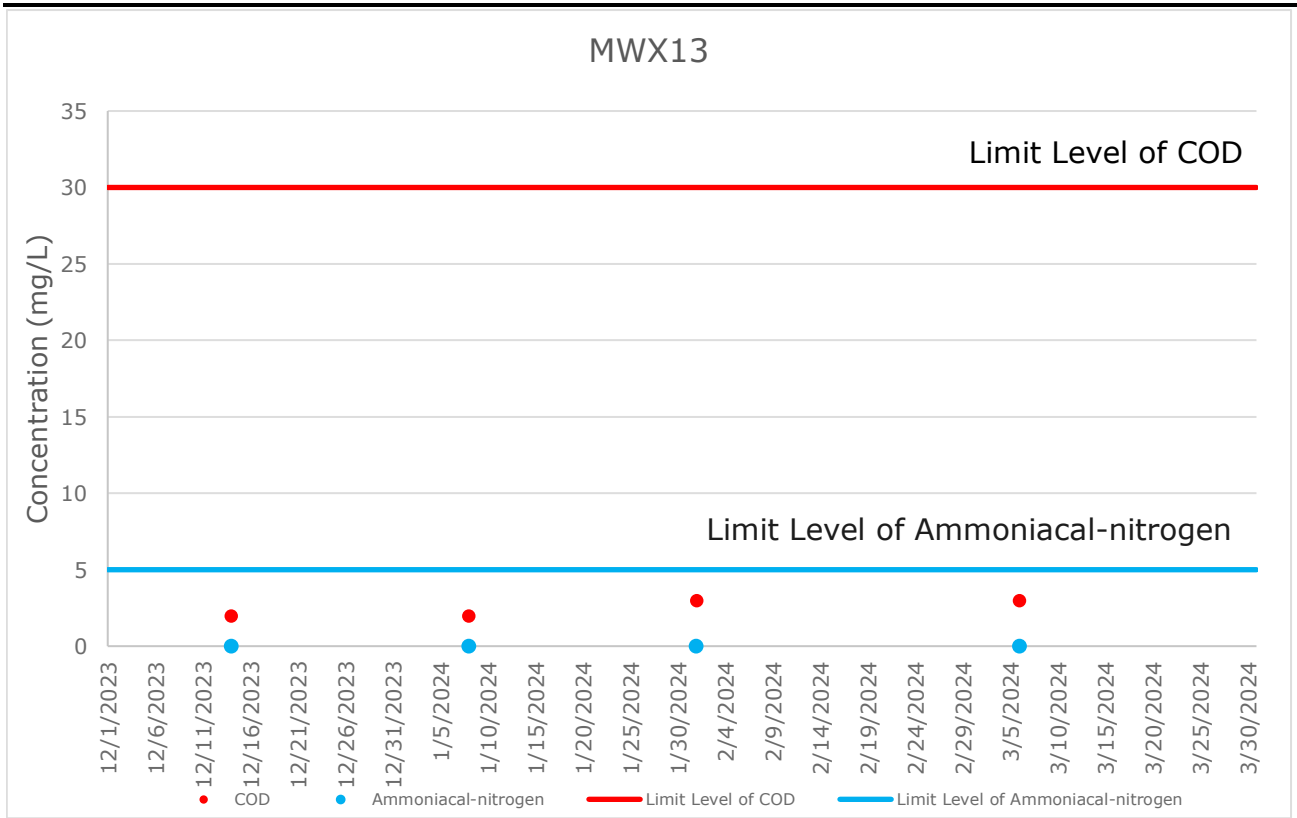


FIGURE F5.14 GRAPHICAL PRESENTATION FOR GROUNDWATER MONITORING (MWX-14)

