



EP-01/097/2001/C

**Provision of EM&A Services at
Water Recreation Centre**

**Monthly EM&A Report No.17
(16 December 2006 to 15 January 2007)**

February 2007

	Name	Signature
Reviewed & Checked:	Y T Tang	
Approved:	Alan Kwok	

Version:	Revision 1	Date:	6 February 2007
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The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of our brief. This report has been prepared for the sole and specific use of our client and MEMCL accepts no responsibility for its use by others.

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MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD

11/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 2893 1551 Fax: (852) 2891 0305 Email: mem@maunsell.aecom.com

**Hong Kong Disneyland Theme Park
Water Recreation Centre (Monthly EM&A Report No.17)**

**Submitted by Maunsell Environmental Management
Consultant Ltd on 5 February 2007**

This is to verify that:

The Water Recreation Centre Monthly EM&A Report No. 17

**Submitted by: Maunsell Environmental Management
Consultant Ltd**

On: 5 February 2007

Has been verified by the undersigned.

Signed



Ir Dr Anne Watker-Zeris
Independent Environmental Checker (IECK)
Retained by Hongkong International Theme Parks Ltd
pursuant to EP No. EP-01/97/2001/C

Date

5 February 2007

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EXECUTIVE SUMMARY

This is the seventeenth monthly Environmental Monitoring and Audit (EM&A) report prepared by Maunsell Environmental Management Consultant Ltd. (MEMCL), the designated Environmental Team (ET), for the project "Provision of EM&A Services at Water Recreation Centre". The Water Recreation Centre (WRC) commenced operation on 16 August 2005.

A working paper, in which water quality monitoring data obtained from 15 August 2005 to 15 March 2006 was presented and analyzed, was submitted to the EPD in May 2006. The paper was accepted in October 2006. According to the review paper, a new monitoring programme has been adopted since 16 October 2006

This report presents the results of EM&A works conducted between 16 December 2006 and 15 January 2007.

Environmental Monitoring Works

Water Quality

For water quality monitoring, all the monitoring results complied with the target limit.

Environmental Licensing and Permitting

Environmental permit (No. EP-01/097/2001/C) was issued to the Hongkong International Theme Parks Limited (HKITP) for the operation of WRC. HKITP has been registered as chemical waste producer (Waste Producer No. 9499-973-H3095-01).

Implementation Status of Environmental Mitigation Measures

Monthly environmental site inspection was carried out on 12 January 2007. Environmental mitigation measures as recommended in the EIA report, Operational EM&A Plan and EP-01/097/2001/C were properly implemented.

Environmental Complaints and Prosecution

No complaint, summons or prosecution related to environmental issues was made against the Project in the reporting period.

Future Key Issues

The operator of WRC is reminded to continue to implement measures as recommended in the EIA report, Operational EM&A Plan and EP-01/097/2001/C.

1. INTRODUCTION

Background

- 1.1 Maunsell Environmental Management Consultants Ltd. (MEMCL) (hereinafter referred as the “ET”) was appointed by Hongkong International Theme Park Ltd. (HKITP) (hereinafter referred as the “Operator”) to carry out operational Environmental Monitoring and Audit at the Water Recreation Centre since its operation on 16 August 2005. Under the requirements of Section 4 of the Environmental Permit EP-01/097/2001/C, EM&A programme is required to be implemented in accordance with the Operational EM&A Plan approved by the Environmental Protection Department (EPD) on 31 August 2005.
- 1.2 The WRC is a portion of the Contract for “Theme Park and Associated Infrastructures at Penny’s Bay”, which encompasses an area of approximately 12 ha and contains a multi-function artificial lake, water-based and land-based recreational facilities and ancillary facilities. Apart from recreation purpose, the lake water is a source of irrigation water for the entire Penny’s Bay. The location of the WRC is given in Figure 1.1.
- 1.3 Following approval of the EIA, an Environmental Permit (EP) was issued to the Civil Engineering Department (CED) (now Civil and Engineering Development Department (CEDD) and the subsequent variation of the permit no. EP-097/2001/B and EP-138/2002/C contain the requirements and obligations on the Environmental Monitoring and Audit (EM&A) during the operation of the WRC. Under the Contract for “Theme Park and Associated Infrastructures at Penny’s Bay”, the WRC and ancillary facilities were designed and constructed under the supervision of CEDD and the WRC would be turned over from CEDD to HKITP for operation upon completion of construction. Environmental permit no. EP-01/097/2001/C was issued to the HKITP for the operation of WRC.
- 1.4 A working paper, in which water quality monitoring data obtained from 15 August 2005 to 15 March 2006 was presented and analysed, was submitted to the EPD in May 2006. The paper was finally accepted in October 2006. According to the review paper, a new monitoring programme has been adopted since 16 October 2006. Details of this new monitoring programme refer to Section 2 of the Report.
- 1.5 This report summarises the environmental monitoring and audit works for the Project between 16 December 2006 and 15 January 2007.

Project Organisation

- 1.6 The structure of the environmental management team is shown in Figure 1.2. Contacts of key environmental staff of the Project are shown in Appendix A.

Summary of the EM&A Requirements

- 1.7 The EM&A programme requires environmental monitoring for water quality within the WRC. The EM&A requirements for each item are described in subsequent sections, including:
 - Monitoring parameters;
 - Action and Limit Levels;
 - Event-Action Plans;
 - Environmental mitigation measures, as recommended in the EIA report, Operational EM&A Plan and EP-01/097/2001/C.
- 1.8 Site audit and the status of environmental licensing and permits are described in Section 3.
- 1.9 Summary of the advice on the implementation status of environmental protection and pollution control/mitigation measures is summarised in Section 3 of the Report.

2. WATER QUALITY

Monitoring Requirements

- 2.1 Water quality monitoring was conducted at five monitoring stations. Upon EPD's approval on the review paper, a new EM&A programme has been in operation since the reporting month. Changes of the EM&A programme include the sampling depth of mid-level was deleted at all stations. Tributyl Tin (TBT) and all heavy metals (copper, zinc, chromium and lead) monitoring parameters were not required. In addition, the monitoring frequency of 5-day BOD, COD and *E.coli* was reduced to once per two weeks. Finally, conductivity and DO concentration would be measured *in-situ*.
- 2.2 Appendix B shows the established Action and Limit Levels (AL Levels) for water quality parameters.

Monitoring Equipment

- 2.3 Water samples were collected at two depths at all sampling locations: (1) 1m below the water surface and (2) 1m above the bottom of the lake. The parameters of water depth, dissolved oxygen (% saturation & concentration), turbidity, temperature, pH and conductivity were measured in-situ. Water samples were collected for analysis by a HOKLAS accredited laboratory. The water quality monitoring equipment deployed is described in Table 2.1.

Table 2.1 Water Quality Monitoring Equipment

Equipment	Model and Make
Dissolved Oxygen & Conductivity Measuring Meter	YSI 85D
Turbidimeter	HACH 2100P
pH Meter	Hanna HI9023
Water Sampler	Wildco Alpha Water Bottle (Vertical)
Differential Global Positioning System (DGPS)	MLR FX412
Water Depth Echo Sounder	Cuda 168

Monitoring Parameters, Frequency and Duration

- 2.4 Table 2.2 summarises the monitoring parameters, frequencies and duration of the water quality monitoring.

Table 2.2 Water Quality Monitoring Parameters, Period and Frequency

Monitoring Station	Parameters, unit	Frequency	No. of Depths
WM1-WM5	¹ Dissolved Oxygen Saturation, % ¹ Water depth, m ¹ pH value ¹ Temperature, °C ¹ Turbidity, NTU ¹ Dissolved Oxygen, mg/L ¹ Conductivity, µS/cm Salinity, g/L Suspended Solids, mg/L Total Nitrogen, mg/L Total Phosphorous, mg/L Total Silica, mg/L Ammonia, mg/L Chlorophyll a, mg/L	Once per week	2 (Surface & Bottom)
	5-day BOD, mg/L COD, mg/L <i>E. Coli</i> , cfu/100mL	Once per two weeks	

Note:

- Parameters to be measured *in-situ*.

Monitoring Locations

- 2.5 Five stations were designated for water quality monitoring. The locations of these monitoring stations are summarized in Table 2.3 and depicted in Figure 2.1.

Table 2.3 Water Quality Monitoring Locations

Location	HK Metric Grid E	HK Metric Grid N
WM1	821 821.66	820 493.99
WM2	822 034.44	820 369.10
WM3	821 839.52	820 377.60
WM4	821 932.82	820 278.32
WM5	821 915.76	820 184.51

Monitoring Methodology

- 2.6 Dissolved oxygen concentration and saturation, water depth, pH value, temperature, conductivity and turbidity were measured *in-situ* at the designated water quality monitoring stations. General observation, weather conditions, with the sampling time, date and location were marked on a field record sheet.
- 2.7 Water samples were taken from each monitoring station with a water sampler for laboratory analysis. The sample was then poured into a pre-labelled bottle. The label contained the sample identification number, sample location, date, time, project name and analyses required.
- 2.8 The samples were placed in a cooler with ice (to 4°C without being frozen) and kept away from sunlight. Samples were submitted to a Hong Kong Accreditation Scheme (HOKLAS) laboratory for analysis within 24 hours of sampling.

Operating/Analytical Procedures

- 2.9 A differential global positioning system (DGPS) was used to ensure that the correct location was selected prior to sample collection.

- 2.10 A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
- 2.11 All in-situ measurements and samples for analysis were taken at two water depths, namely 1m below water surface and 1m above the bottom of the lake.
- 2.12 At each measurement/sampling depth, two consecutive measurements for each in-situ parameters were taken. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.
- 2.13 Water samples were collected using the water sampler and the samples were stored in pre-labelled bottles. Water samples collected were well-mixed in the water sampler prior to transferring to sample bottles. The sample bottles were then packed in cool-boxes (cooled at 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. for the laboratory analysis.

Maintenance and Calibration

- 2.14 The dissolved oxygen meter, which also measures temperature and conductivity, was calibrated by the wet bulb method before each monitoring day. Before the routine calibration, the sensor for dissolved oxygen was thermally equilibrated in water-saturated air. The calibration cup served as a calibration chamber and it was loosened from airtight condition before it was used for the calibration. Calibration was also carried out in a water sample with a known concentration of dissolved oxygen at 3-month intervals. The sensor was immersed in the water and after thermal equilibration, the known mg/L value was keyed in and the calibration was carried out automatically.
- 2.15 The turbidimeter has already been calibrated at 3-month intervals. Before the measurement, a zero check in distilled water was performed with the turbidimeter. The turbidimeter was calibrated with a solution of known NTU.
- 2.16 The pH meter was calibrated at 3-month interval. Before the measurement, a zero check in distilled water was performed with the meter. The probe was calibrated with a solution of known salinity. A similar procedure was carried out for pH value calibration.
- 2.17 Calibration records are presented in Appendix C.

Laboratory Analysis

- 2.18 All laboratory work was carried out by ALS (HK) Pty. Ltd. The determination work started within 24 hours after collection of the water samples. The analyses followed the standard methods according to Table 2.4 and as described in APHA Standard Methods for the Examination of Water and Wastewater.

Table 2.4 Analytical Methods to be applied to Water Quality Samples

Determinant, unit	Reference Method Used ¹ (APHA 20 th ed)	Reporting Limits
Salinity, g/L	2520B	0.1 g/L
Suspended Solids, mg/L	2540D	2 mg/L
Total Nitrogen, mg/L	4500Norg: B 4500NO ₃ : F	0.1 mg/L
Total Phosphorus, mg/L	4500P: B4, F	0.1 mg/L
Total Silica, mg/L	4500Si: F	0.01 mg/L
5-day BOD, mg/L	5210B	2 mg/L
COD, mg/L	5220B	2 mg/L
Ammonia Nitrogen, mg/L	4500NH ₃ : G	0.01 mg/L
Chlorophyll-a, mg/L	10200H2	5 mg/L
<i>E. Coli.</i> cfu/100mL	DoE Section 7.9.4.2 & 4	1 cfu/100mL

Note:

1. All testing conducted by the laboratory are In-House methods based on the method stated in the "Standard Methods for the Testing of Water and Wastewater, 19th & 20th ed" (APHA) or the USEPA SW846.

QA/QC Procedure

2.19 ALS Technichem (HK) Pty. Ltd. has comprehensive quality assurance and quality control programmes. The QA/QC procedures for each analytical batch:

- At least 1 reagent blank solution was prepared and analyzed;
- At least 1 duplicate sample analysis was performed in every 10 samples;
- At least 1 in every 10 samples was spiked with a known concentration of the analyte to determine the matrix effect of the sample.

Results and Observations

2.20 Monitoring of water quality was carried out at the 5 designated monitoring stations on 5 occasions during the reporting period (22, 28 December 2006 & 3, 9 and 15 January 2007). The monitoring schedule is presented in Appendix D. All monitoring data and graphical presentation of the monitoring results are provided in Appendix E and summarised in Table 2.5.

Table 2.5 Summary of Water Quality Monitoring Results

Parameters	Monitoring Data (Depth Averaged Data)				
	WM1	WM2	WM3	WM4	WM5
Temperature, °C	15.4 – 18.8 (15.5 – 18.8)	15.6 – 18.8 (15.6 – 18.8)	15.6 – 18.8 (15.7 – 18.8)	15.8 – 18.8 (15.8 – 18.8)	16.0 – 18.8 (16.1 – 18.8)
Daily Temperature Difference ¹ , °C	0.0 – 0.6				
Turbidity, NTU	1.0 – 2.5	1.1 – 2.6	1.1 – 2.5	1.2 – 2.6	1.1 – 2.5
pH	7.1 – 7.5 (7.1 – 7.5)	7.1 – 7.5 (7.1 – 7.5)	7.1 – 7.6 (7.1 – 7.6)	7.1 – 7.5 (7.1 – 7.5)	7.1 – 7.5 (7.1 – 7.5)
Dissolved Oxygen, mg/L	4.86 – 7.10 (5.11 – 7.08)	4.86 – 7.13 (4.87 – 7.11)	4.86 – 7.22 (4.87 – 7.21)	4.89 – 7.27 (4.91 – 7.22)	7.97 – 7.01 (5.05 – 6.99)
Conductivity, µS/cm	82.4 – 94.7	82.1 – 94.9	82.5 – 94.8	83.2 – 94.8	83.5 – 94.8
Salinity, g/L	all <0.1	all <0.1	all <0.1	all <0.1	all <0.1
Suspended Solids ² , mg/L	<2 - 3	<2 - 3	<2 - 3	<2 - 2	<2 - 3
Total Nitrogen, mg/L	0.1 – 0.3 (0.1 – 0.3)	0.1 – 0.3 (0.1 – 0.3)	<0.1 – 0.8 (<0.1 – 0.6)	<0.1 – 0.4 (<0.1 – 0.4)	<0.1 – 0.3 (<0.1 – 0.3)
Total Phosphorous ¹ , mg/L	all <0.02	all <0.02	all <0.02	all <0.02	all <0.02
Silica, mg/L	6.3 – 7.4 (6.4 – 7.4)	6.2 – 7.5 (6.3 – 7.5)	6.1 – 7.4 (6.3 – 7.4)	6.3 – 7.5 (6.5 – 7.4)	6.2 – 7.5 (6.4 – 7.5)
Ammonia Nitrogen, mg/L	<0.01 – 0.01	<0.01 – 0.02	all <0.01	all <0.01	<0.01 – 0.01
Unionised Ammonia ³ , mg/L	<0.00072 – <0.00076	<0.00074 – <0.00078	<0.00063 – <0.00066	<0.00086 – <0.00090	<0.00067 – <0.00071
BOD ₅ , mg/L	all <2	all <2	all <2	all <2	all <2
COD, mg/L	<2 – 5 (<3 - 5)	<2 – 4 (<2 - 4)	<2 – 4 (<3 - 4)	3 – 4 (3 - 4)	3 – 4 (4)
Chlorophyll-a, mg/L	0.7 – 1.6	1.0 – 1.8	1.1 – 1.7	1.2 – 1.8	1.1 – 2.2
<i>E. Coli</i> ⁴ , cfu/100mL	all <2	all <2	all <2	all <2	all <2

Note: 1. Present as depth average 2. Present as annual median
 3. Present as annual median 4. Present as geometric mean for last 5 measurements

- 2.21 The QA/QC results for laboratory testing in the reporting period were acceptable. The QA/QC results are summarised in Appendix F.
- 2.22 All recorded levels during the reporting period were below the AL Levels. Table 2.6 summarises water quality exceedances in the reporting period.

Table 2.6 Summary of Water Quality Exceedances

Parameters	WM1		WM2		WM3		WM4		WM5		Total	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
Dissolved Oxygen	0	0	0	0	0	0	0	0	0	0	0	0
pH	0	0	0	0	0	0	0	0	0	0	0	0
Temperature	-	0	-	0	-	0	-	0	-	0	-	0
Suspended Solids	0	0	0	0	0	0	0	0	0	0	0	0
Ammonia Nitrogen	0	0	0	0	0	0	0	0	0	0	0	0
<i>E. Coli</i>	0	0	0	0	0	0	0	0	0	0	0	0
BOD ₅	0	0	0	0	0	0	0	0	0	0	0	0
COD	0	0	0	0	0	0	0	0	0	0	0	0

Note: Assessment criteria applied to depth averaged results at each location.

- 2.23 Water temperatures measured ranged from 15.4 – 18.8 °C. The maximum daily variation between each station was 0.6 °C on 28 December 2006. The variation was within the AL Levels. Salinity measurements at all stations were below detection limit, indicating no intrusion of saline water was present in WRC. DO level at all stations were above the *Theme Park EIA* proposed standard of 4.2 mg/L.
- 2.24 BOD₅ levels at all stations were below detection limit while COD levels measured from <2 – 5 mg/L. Depth averaged results of both parameters complied with the standards proposed in the *Theme Park EIA* (5 and 30 mg/L respectively). The medians of SS measurements during the same period also observed to comply with the proposed standards (25 mg/L). Low levels of SS measurements (annual median ranged <2 – 3 mg/L) correlate with the low in-situ turbidity measurements (1.0 – 2.6 NTU).
- 2.25 Conductivity measured ranged from 82.1 to 94.9 μ S/cm, while minor variations in silica concentration ranged from 6.1 to 7.5 was measured. The relatively constant range of conductivity indicated that a discharge or some other source of pollution was not present.
- 2.26 The unionised ammonia levels, derived from ammonia nitrogen, temperature, pH and salinity levels, were substantially lower than the proposed standard of 0.021 mg/L. Together with other measurements in terms of Total Nitrogen and Total Phosphorus, nutrient levels within the WRC were relatively low.
- 2.27 Chlorophyll-a concentration ranged from 0.7 to 2.2 mg/L.
- 2.28 For *E.Coli*, the geometric means of the last five readings at all monitoring locations were below the AL Levels.

3. ENVIRONMENTAL AUDIT

Implementation Status of Environmental Mitigation Measures

- 3.1 Site audit was carried out on a monthly basis to monitor environmental issues to ensure that all mitigation measures were implemented timely and properly.
- 3.2 Monthly site inspection was carried out on 12 January 2007. Environmental mitigation measures for water quality, waste management, landscape and visual, as recommended in the EIA report, Operational EM&A Plan and EP were properly implemented. There was no specific observation requiring following up action. In general, the condition of the WRC was satisfactory:
- No floating refuse was observed.
 - No uncontrolled surface runoff into the lake was observed.
 - Environmental Permit was posted at vehicle site entrance.
- 3.3 A summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix G.

Status of Environmental Licensing and permitting

- 3.4 All permits/licences/notifications obtained as of the reporting period are summarised in Table 3.1

Table 3.1 Summary of Environmental Notification, Licensing and Permit Status

Permit No.	Valid Period		Description	Status
	From	To		
Environmental Permit				
EP-01/097/2001/C	19 Oct. 05	-	Operation of an approximately 32 ha water recreation centre with a 12 ha multi-function artificial lake, water-based and land-based recreational facilities and ancillary facilities	Valid
Chemical Waste Registration				
9499-973-H3095-01	29 Jul. 05	-	Theme Park at Penny's Bay	Valid

Implementation Status of Event and Action Plans

- 3.5 The Event and Action Plans for water quality are presented in Appendix H.
- 3.6 All the monitoring results were below the AL Levels. Therefore, no action was required.

Waste Management

- 3.7 Waste management of WRC was implemented as stipulated in the Waste Management Plan.
- 3.8 As waste management of WRC was undertaken as part of the overall Theme Park Resort waste management scheme, records of waste handling and disposal would be reported in the Theme Park EM&A report.

Implementation Status of Environmental Complaint Handling Procedures

- 3.9 Appendix I presents the environmental complaint flow diagram of the Project.
- 3.10 No complaint, summons or prosecution related to environmental issues was received or made against the Project in the reporting period.

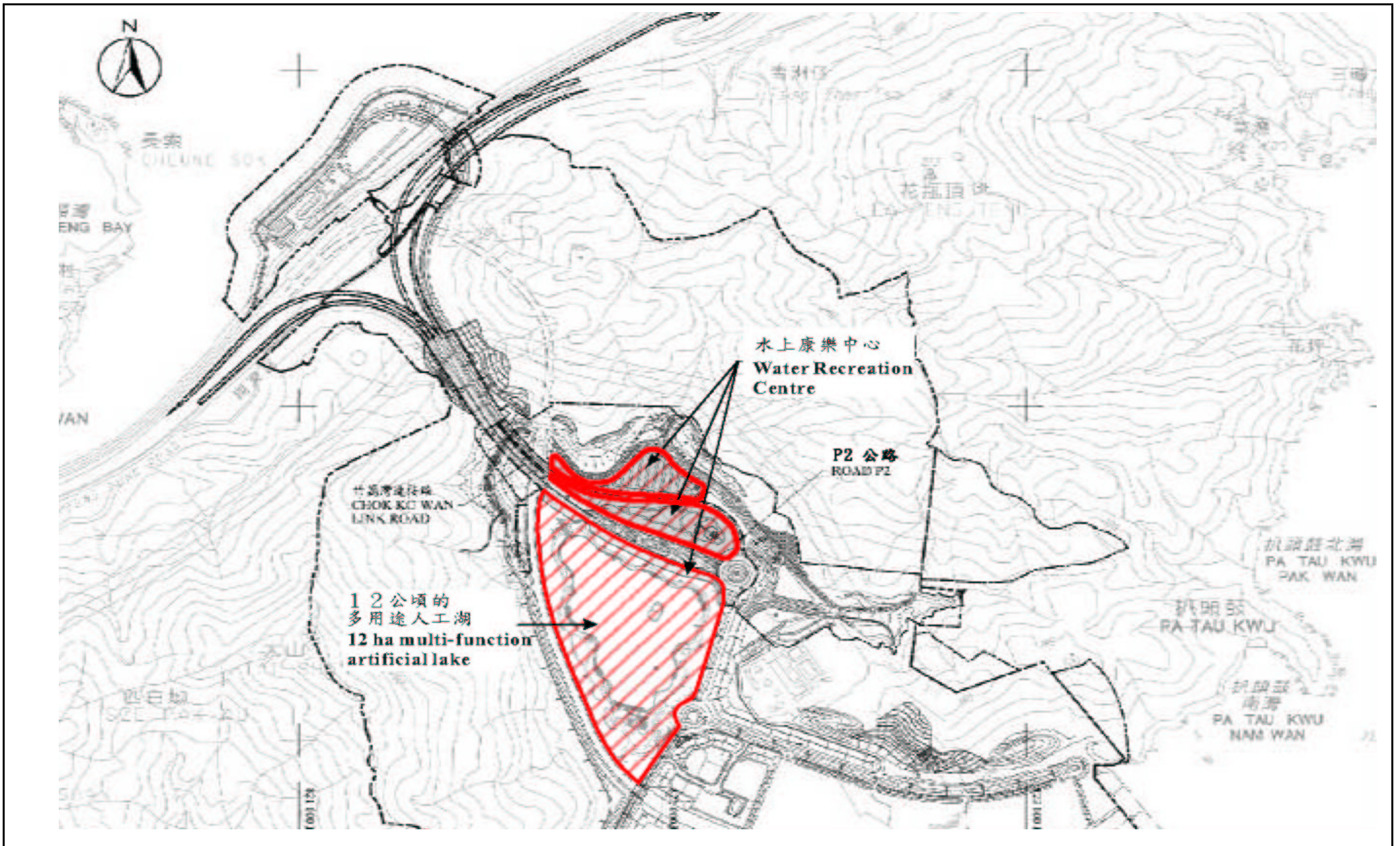
4. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

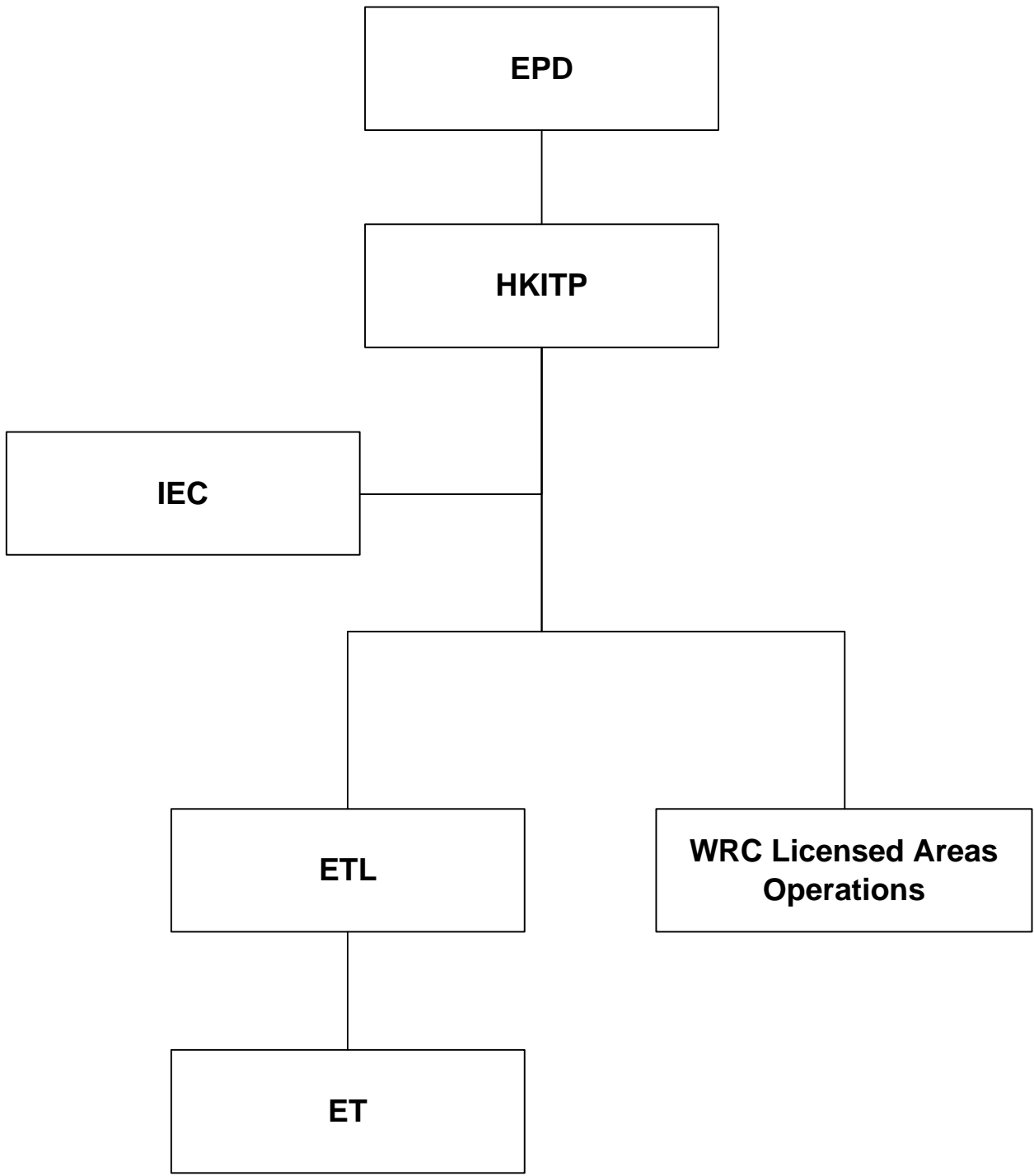
- 4.1 Environmental monitoring was performed between 16 December 2006 and 15 January 2007. All monitoring results in the reporting period were checked and reviewed.
- 4.2 The new monitoring programme was implemented since 16 October 2006 upon approval of the review paper based on the environmental monitoring results from 16 March 2005 to 15 March 2006. All water quality measurements in the reporting period were below the AL Levels in the reporting month.
- 4.3 Environmental mitigation measures as recommended in the EIA Report, Operational EM&A Plan and EP were properly implemented.
- 4.4 No complaint, summons or prosecution related to environmental issues was made against the Project in the reporting period.

Recommendations

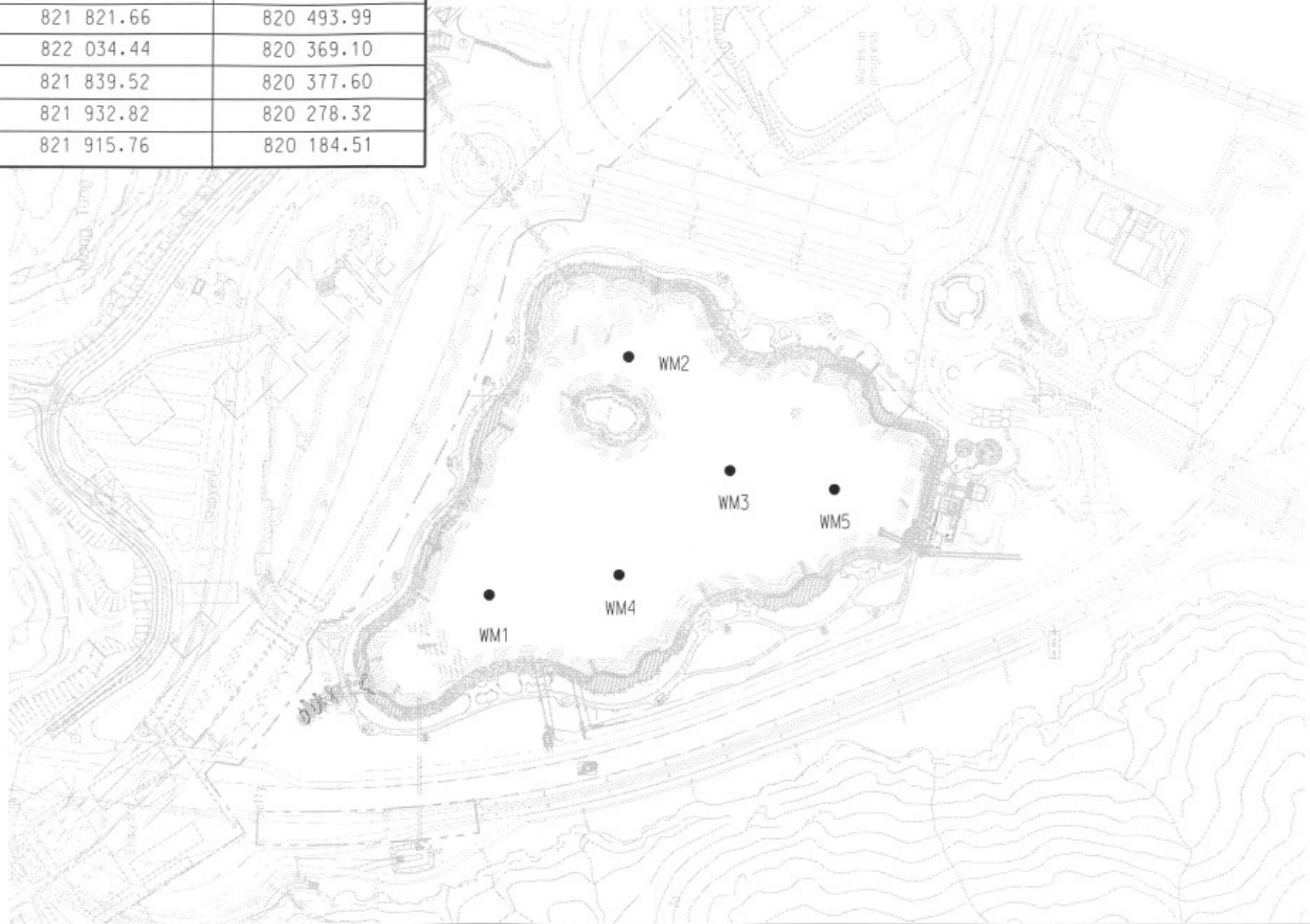
- 4.5 The operator of WRC is reminded to continue to implement measures as recommended in EIA Report and EP.



SCALE	N.T.S.	DATE	2005
CHECK	KCHC	DRAWN	LLMC
JOB NO.	S07105	FIGURE NO.	1.1
			Rev -



Location	HK Metric Grid E	HK Metric Grid N
WM1	821 821.66	820 493.99
WM2	822 034.44	820 369.10
WM3	821 839.52	820 377.60
WM4	821 932.82	820 278.32
WM5	821 915.76	820 184.51



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FEP-01/097/2001/B
PROVISION OF ENVIRONMENTAL MONITORING & AUDIT SERVICES FOR WATER RECREATION CENTRE

LOCATIONS OF WATER QUALITY MONITORING STATIONS

SCALE	A4 1:5000	DATE	2005
CHECK	KCHC	DRAWN	YPK
JOB No.	S07105	DRAWING No.	2.1
		REV	-

Appendix A: Contacts of Key Environmental Staff

	<u>Name</u>	<u>Telephone</u>	<u>Fax</u>
<u>IEC</u>			
Mott MacDonald			
Independent Environmental Checker	Dr. Anne Watker-Zeris	2828 5757	2827 1823
<u>ET</u>			
Maunsell Environmental Management Consultants Limited			
Environmental Team Leader	Mr. Alan Kwok	2893 1551	2891 0305
Environmental Scientist	Mr. Eddie Yang	2893 1551	2891 0305

Appendix B – Action and Limit Levels

Action and Limit Levels for Water Quality Monitoring

Parameter, unit	Action	Limit
Dissolved Oxygen	<4.2 mg/L	<2.0 mg/L
pH	<6.3 or >8.5	<6 or >9
Temperature	Not applicable	Within a daily range of 2°C
Suspended Solids	>23.75 mg/L, measured as annual median	>25 mg/L, measured as annual median
Ammonia Nitrogen	>0.01995 mg/L for unionized form, as annual average	>0.021 mg/L for unionized form, as annual average
E. coli	>171 cfu per 100mL, geometric mean for last 5 measurements	>180 cfu per 100mL, geometric mean for last 5 measurements
5-day BOD	>4.75 mg/L	>5 mg/L
COD	>28.5 mg/L	>30 mg/L

Appendix C Calibration Details

Equipment Type	Equipment No.	Calibration Date	Next Calibration Date
HANNA pH Meter HI9023	W.039.05	17 Nov. 2006	17 Feb. 2007
Turbidimeter HACH 2100P	W.001.08	18 Sep. 2006	18 Dec. 2006
		14 Dec. 2006	14 Mar. 2007
YSI Multimeter YSI 85D	W.015.02	17 Nov. 2006	17 Feb. 2007



CERTIFICATE OF ANALYSIS

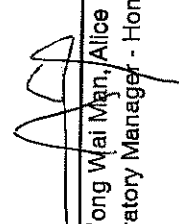
Batch: HK0607765
 Sub Batch : 0
 Date of Issue: 14/12/2006
 Client: MAUNSELL ENV MGT CNLT LTD
 Client Reference:

Calibration of Turbidimeter

Item : HACH Turbidimeter
 Model No. : HACH 2100P
 Serial No. : 030400030650
 Equipment No.: W-001-08
 Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B
 Date of Callibration : 14 December, 2006

Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.14 NTU
4.00 NTU	3.80 NTU
16.0 NTU	15.2 NTU
80.0 NTU	74.3 NTU
160 NTU	145 NTU
Allowing Deviation	±10%


 Ms Wong Wai Man, Alice
 Laboratory Manager - Hong Kong

**Environmental Monitoring and Audit Services for Water Recreation Centre
Environmental Monitoring and Audit Schedule for December 2006/January 2007**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
					Weekly Water Quality Monitoring	
24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec
				Weekly Water Quality Monitoring		
31-Dec	1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan
			Weekly Water Quality Monitoring			
7-Jan	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan
		Weekly Water Quality Monitoring				
14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
	Weekly Water Quality Monitoring				Monthly Site Inspection	

Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:36	Surface	1	16.6 16.6	16.6	6.56	6.45	87.4 88.0	87.7	1.6 1.7	1.7	1.7	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.7	16.5 16.5	16.5	6.34		86.7 86.9	86.8	1.6 1.6	1.6		7.5 7.5	7.5	7.5	93.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	8:44	Surface	1	18.5 18.3	18.4	7.06	7.08	75.2 76.3	75.8	1.3 1.3	1.3	1.4	7.2 7.2	7.2	7.2	94.5	94.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.4 18.4	18.4	7.10		76.7 76.9	76.8	1.4 1.5	1.5		7.2 7.2	7.2	7.2	94.7		<0.1		<2		
3-Jan-07	Fine	Moderate	8:43	Surface	1	18.8 18.8	18.8	5.35	5.11	58.7 58.2	58.5	2.4 2.4	2.4	2.5	7.5 7.5	7.5	7.5	94.5	94.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.86		52.0 52.4	52.2	2.4 2.5	2.5		7.5 7.5	7.5	7.5	94.7		<0.1		<2		
9-Jan-07	Sunny	Calm	9:21	Surface	1	15.5 15.6	15.6	7.01	6.99	83.3 83.8	83.6	1.2 1.2	1.2	1.2	7.1 7.1	7.1	7.1	82.5	82.5	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	15.6 15.4	15.5	6.97		83.6 83.4	83.5	1.0 1.1	1.1		7.1 7.1	7.1	7.1	82.4		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:26	Surface	1	16.9 16.9	16.9	7.07	6.98	88.6 89.3	89.0	1.2 1.2	1.2	1.3	7.1 7.1	7.1	7.1	86.7	86.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	16.8 16.9	16.9	6.89		86.6 86.9	86.8	1.3 1.3	1.3		7.1 7.1	7.1	7.1	86.6		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:36	Surface	1	0.3	0.3	<0.02	<0.02	6.5	6.4	-	-	-	-	0.01	<0.01000	<0.00076	1.1	1.2	-	-	-
				Bottom	3.7	0.3		<0.02		6.3		-		-		<0.01000			1.2		-		
28-Dec-06	Fine	Moderate	8:44	Surface	1	0.2	0.2	<0.02	<0.02	6.4	6.4	<2	<2	5.0	5.0	<0.01000	<0.01000	<0.00075	1.4	1.4	<1	<1	<2
				Bottom	3.8	0.2		<0.02		6.4		<2		5.0		<0.01000			1.3		<1		
3-Jan-07	Fine	Moderate	8:43	Surface	1	0.3	0.3	<0.02	<0.02	7.1	7.1	-	-	-	-	<0.01000	<0.01000	<0.00074	1.5	1.6	-	-	-
				Bottom	3.8	0.3		<0.02		7.0		-		-		<0.01000			1.6		-		
9-Jan-07	Sunny	Calm	9:21	Surface	1	0.1	0.1	<0.02	<0.02	7.4	7.4	<2	<2	3.0	<3	<0.01000	<0.01000	<0.00073	0.7	1.0	<1	<1	<2
				Bottom	3.6	0.1		<0.02		7.4		<2		<2		<0.01000			1.2		<1		
15-Jan-07	Cloudy	Calm	9:26	Surface	1	0.3	0.3	<0.02	<0.02	7.3	7.3	-	-	-	-	<0.01000	<0.01000	<0.00072	1.5	1.6	-	-	-
				Bottom	3.6	0.2		<0.02		7.3		-		-		<0.01000			1.6		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	AM
22-Dec-06	Sunny	Calm	9:30	Surface	1	16.7 16.6	16.7	6.59	6.59	88.3 87.9	88.1	1.7 1.6	1.7	1.7	7.5 7.5	7.5	7.5	93.0	94.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.6	16.6 16.6	16.6	6.58		88.0 88.2	88.1	1.7 1.7	1.7		7.5 7.5	7.5	7.5	94.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	9:03	Surface	1	17.8 18.0	17.9	7.13	7.11	77.1 78.2	77.7	1.5 1.6	1.6	1.7	7.1 7.1	7.1	7.2	94.9	94.8	<0.1	<0.1	2.0	<2	<2.00
				Bottom	3.7	17.9 18.0	18.0	7.09		75.6 74.3	75.0	1.7 1.7	1.7		7.2 7.2	7.2	7.2	94.7		<0.1		<2		
3-Jan-07	Fine	Moderate	9:01	Surface	1	18.8 18.8	18.8	4.87	4.87	52.1 52.5	52.3	2.6 2.6	2.6	2.6	7.4 7.5	7.5	7.5	94.9	94.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.86		52.0 52.1	52.1	2.6 2.6	2.6		7.5 7.5	7.5	7.5	94.7		<0.1		<2		
9-Jan-07	Sunny	Calm	9:10	Surface	1	15.8 15.7	15.8	5.35	5.11	83.1 83.0	83.1	1.2 1.1	1.2	1.2	7.1 7.1	7.1	7.1	82.1	82.4	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	15.6 15.6	15.6	4.86		82.5 82.1	82.3	1.1 1.1	1.1		7.1 7.1	7.1	7.1	82.6		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:15	Surface	1	16.8 16.8	16.8	6.95	6.94	87.7 87.4	87.6	1.3 1.3	1.3	1.3	7.1 7.1	7.1	7.1	87.1	86.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	16.7 16.7	16.7	6.93		87.2 87.1	87.2	1.3 1.3	1.3		7.1 7.1	7.1	7.1	86.5		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																		
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)			
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM	
22-Dec-06	Sunny	Calm	9:30	Surface	1	0.3	0.3	<0.02	<0.02	6.5	6.5	-	-	-	-	<0.01000	<0.01000	<0.00078	1.0	1.1	-	-	-	
				Bottom	3.6	0.2		<0.02		6.5		-		-		<0.01000			1.1		-			
28-Dec-06	Fine	Moderate	9:03	Surface	1	0.2	0.2	<0.02	<0.02	6.2	6.3	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00077	1.2	1.3	<1	<1	<2	
				Bottom	3.7	0.2		<0.02		6.5		<2		4.0		<0.01000			1.4		<1			
3-Jan-07	Fine	Moderate	9:01	Surface	1	0.3	0.3	<0.02	<0.02	6.8	6.7	-	-	-	-	<0.01000	<0.01000	<0.00076	1.4	1.6	-	-	-	
				Bottom	3.8	0.3		<0.02		6.6		-		-		<0.01000			1.8		-			
9-Jan-07	Sunny	Calm	9:10	Surface	1	0.1	0.1	<0.02	<0.02	7.1	7.3	<2	<2	<2	<2	<0.01000	<0.01000	<0.00075	1.3	1.2	<1	<1	<2	
				Bottom	3.7	0.1		<0.02		7.5		<2		2.0		<0.01000			1.1		<1			
15-Jan-07	Cloudy	Calm	9:15	Surface	1	0.1	0.1	<0.02	<0.02	7.5	7.5	-	-	-	-	0.02	0.020	<0.00074	1.4	1.5	-	-	-	
				Bottom	3.8	0.1		<0.02		7.5		-		-		0.02			1.5		-			

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:44	Surface	1	16.5 16.6	16.6	6.31	6.29	86.6 86.5	86.6	1.7 1.6	1.7	1.7	7.6 7.5	7.6	7.6	94.0	94.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.8	16.6 16.6	16.6	6.27		86.1 85.8	86.0	1.6 1.6	1.6		7.5 7.5	7.5		93.0		<0.1		3.0		
28-Dec-06	Fine	Moderate	9:21	Surface	1	18.1 18.0	18.1	7.22	7.21	79.2 79.9	79.6	1.4 1.5	1.5	1.6	7.2 7.3	7.3	7.3	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	18.2 18.1	18.2	7.19		78.3 78.5	78.4	1.5 1.6	1.6		7.3 7.2	7.3		94.8		<0.1		<2		
3-Jan-07	Fine	Moderate	9:17	Surface	1	18.8 18.8	18.8	4.89	4.91	52.4 52.6	52.5	2.5 2.5	2.5	2.5	7.5 7.5	7.5	7.5	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.93		52.8 53.0	52.9	2.5 2.5	2.5		7.5 7.5	7.5		94.8		<0.1		<2		
9-Jan-07	Sunny	Calm	9:31	Surface	1	15.8 15.8	15.8	4.87	4.87	84.4 84.6	84.5	1.1 1.2	1.2	1.2	7.1 7.1	7.1	7.1	82.5	82.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.4	15.7 15.6	15.7	4.86		84.0 83.8	83.9	1.2 1.2	1.2		7.1 7.1	7.1		82.7		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:36	Surface	1	16.9 16.8	16.9	6.87	6.83	86.6 86.5	86.6	1.4 1.3	1.4	1.4	7.2 7.2	7.2	7.2	86.9	86.9	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	16.8 16.8	16.8	6.79		86.0 85.8	85.9	1.3 1.3	1.3		7.2 7.2	7.2		86.8		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:44	Surface	1	0.8	0.6	<0.02	<0.02	6.1	6.3	-	-	-	-	<0.01000	<0.01000	<0.00066	1.4	1.3	-	-	-
				Bottom	3.8	0.3		<0.02		6.6		-		-		<0.01000			1.2		-		
28-Dec-06	Fine	Moderate	9:21	Surface	1	0.2	0.3	<0.02	<0.02	6.7	6.8	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00065	1.3	1.4	<1	<1	<2
				Bottom	3.7	0.3		<0.02		6.8		<2		4.0		<0.01000			1.4		<1		
3-Jan-07	Fine	Moderate	9:17	Surface	1	0.3	0.3	<0.02	<0.02	6.1	6.3	-	-	-	-	<0.01000	<0.01000	<0.00064	1.7	1.6	-	-	-
				Bottom	3.8	0.3		<0.02		6.4		-		-		<0.01000			1.5		-		
9-Jan-07	Sunny	Calm	9:31	Surface	1	0.1	<0.1	<0.02	<0.02	7.1	7.3	<2	<2	<2	<3	<0.01000	<0.01000	<0.00063	1.3	1.2	<1	<1	<2
				Bottom	3.4	<0.1		<0.02		7.4		<2		3.0		<0.01000			1.1		<1		
15-Jan-07	Cloudy	Calm	9:36	Surface	1	0.2	0.2	<0.02	<0.02	7.4	7.4	-	-	-	-	<0.01000	<0.01000	<0.00063	1.3	1.4	-	-	-
				Bottom	3.7	0.2		<0.02		7.4		-		-		<0.01000			1.4		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
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 GM - Geometric Mean for last 5 measurements

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Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	AM
22-Dec-06	Sunny	Calm	9:51	Surface	1	16.5 16.6	16.6	6.63	6.62	89.0 88.3	88.7	1.6 1.6	1.6	1.6	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	2.0	2.0	<2.00
				Bottom	3.8	16.4 16.4	16.4	6.60		88.0 88.2	88.1	1.6 1.6	1.6		7.5 7.5	7.5	7.5	92.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	9:37	Surface	1	17.7 17.8	17.8	7.27	7.22	80.0 79.4	79.7	1.8 1.9	1.9	2.0	7.2 7.1	7.2	7.2	94.8	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	18.0 18.1	18.1	7.16		76.2 76.7	76.5	1.9 2.0	2.0		7.1 7.1	7.1	7.1	94.6		<0.1		<2		
3-Jan-07	Fine	Moderate	9:32	Surface	1	18.8 18.8	18.8	4.97	5.05	53.0 52.6	52.8	2.5 2.6	2.6	2.6	7.5 7.5	7.5	7.5	94.8	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	4	18.8 18.8	18.8	5.13		55.2 55.0	55.1	2.5 2.5	2.5		7.5 7.5	7.5	7.5	94.6		<0.1		<2		
9-Jan-07	Sunny	Calm	9:42	Surface	1	15.9 15.8	15.9	4.89	4.91	85.5 84.9	85.2	1.2 1.3	1.3	1.3	7.1 7.1	7.1	7.1	83.2	83.2	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	15.8 15.8	15.8	4.93		85.0 84.6	84.8	1.2 1.2	1.2		7.1 7.1	7.1	7.1	83.2		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:45	Surface	1	16.9 16.9	16.9	6.71	6.72	84.7 85.1	84.9	1.2 1.2	1.2	1.3	7.1 7.1	7.1	7.1	87.0	86.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	16.8 16.7	16.8	6.72		85.3 84.9	85.1	1.3 1.3	1.3		7.1 7.1	7.1	7.1	86.5		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:51	Surface	1	0.2	0.3	<0.02	<0.02	6.3	6.5	-	-	-	-	<0.01000	<0.01000	<0.00090	1.2	1.3	-	-	-
				Bottom	3.8	0.3		<0.02		6.7		-		-		<0.01000			1.4		-		
28-Dec-06	Fine	Moderate	9:37	Surface	1	0.3	0.3	<0.02	<0.02	6.7	6.9	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00089	1.4	1.3	<1	<1	<2
				Bottom	3.6	0.2		<0.02		7.1		<2		4.0		<0.01000			1.2		<1		
3-Jan-07	Fine	Moderate	9:32	Surface	1	0.3	0.3	<0.02	<0.02	6.6	6.5	-	-	-	-	<0.01000	<0.01000	<0.00088	1.8	1.8	-	-	-
				Bottom	4	0.3		<0.02		6.4		-		-		<0.01000			1.7		-		
9-Jan-07	Sunny	Calm	9:42	Surface	1	0.1	<0.1	<0.02	<0.02	7.5	7.4	<2	<2	3.0	3.0	<0.01000	<0.01000	<0.00087	1.7	1.6	<1	<1	<2
				Bottom	3.6	<0.1		<0.02		7.3		<2		3.0		<0.01000			1.4		<1		
15-Jan-07	Cloudy	Calm	9:45	Surface	1	0.3	0.4	<0.02	<0.02	7.3	7.4	-	-	-	-	<0.01000	<0.01000	<0.00086	1.3	1.5	-	-	-
				Bottom	3.7	0.4		<0.02		7.5		-		-		<0.01000			1.6		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM5

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring															Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)			
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
22-Dec-06	Sunny	Calm	9:59	Surface	1	16.7 16.7	16.7	6.40	6.37	87.6 86.9	87.3	1.7 1.7	1.7	1.8	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	2.0	2.0	<2.00	
				Bottom	3.7	16.6 16.5	16.6	6.34		86.6 86.5	86.6	1.7 1.8	1.8		7.5 7.5	7.5	7.5	93.0		<0.1		2.0			
28-Dec-06	Fine	Moderate	9:48	Surface	1	18.0 18.1	18.1	7.01	6.99	81.2 80.6	80.9	1.9 1.9	1.9	1.9	7.2 7.2	7.2	7.2	94.5	94.7	<0.1	<0.1	<2	<2	<2.00	
				Bottom	3.5	18.0 17.9	18.0	6.97		79.4 80.1	79.8	1.8 1.9	1.9		7.2 7.2	7.2	7.2	94.8		<0.1		<2			
3-Jan-07	Fine	Moderate	9:46	Surface	1	18.8 18.8	18.8	5.23	5.18	56.4 56.2	56.3	2.5 2.5	2.5	2.5	7.5 7.5	7.5	7.5	94.5	94.7	<0.1	<0.1	<2	<2	<2.00	
				Bottom	3.9	18.8 18.8	18.8	5.13		54.9 55.3	55.1	2.4 2.5	2.5		7.5 7.5	7.5	7.5	94.8		<0.1		<2			
9-Jan-07	Sunny	Calm	9:52	Surface	1	16.1 16.1	16.1	4.97	5.05	82.2 82.1	82.2	1.1 1.1	1.1	1.1	7.1 7.1	7.1	7.1	83.5	83.5	<0.1	<0.1	<2	<2	<2.00	
				Bottom	3.5	16.0 16.1	16.1	5.13		81.7 81.3	81.5	1.1 1.1	1.1		7.1 7.1	7.1	7.1	83.5		<0.1		<2			
15-Jan-07	Cloudy	Calm	9:54	Surface	1	16.8 16.9	16.9	6.87	6.86	86.7 86.4	86.6	1.3 1.3	1.3	1.3	7.2 7.2	7.2	7.2	86.5	86.5	<0.1	<0.1	<2	<2	<2.00	
				Bottom	3.6	16.9 16.9	16.9	6.85		86.6 86.3	86.5	1.2 1.3	1.3		7.1 7.1	7.1	7.1	86.4		<0.1		<2			

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

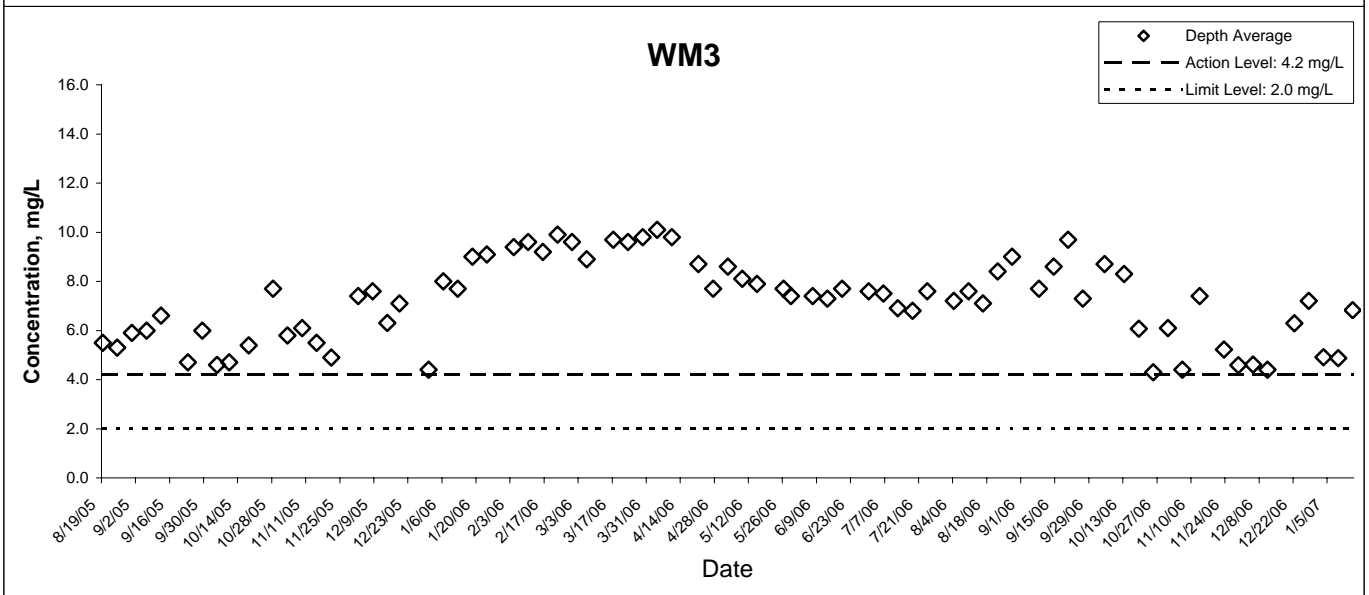
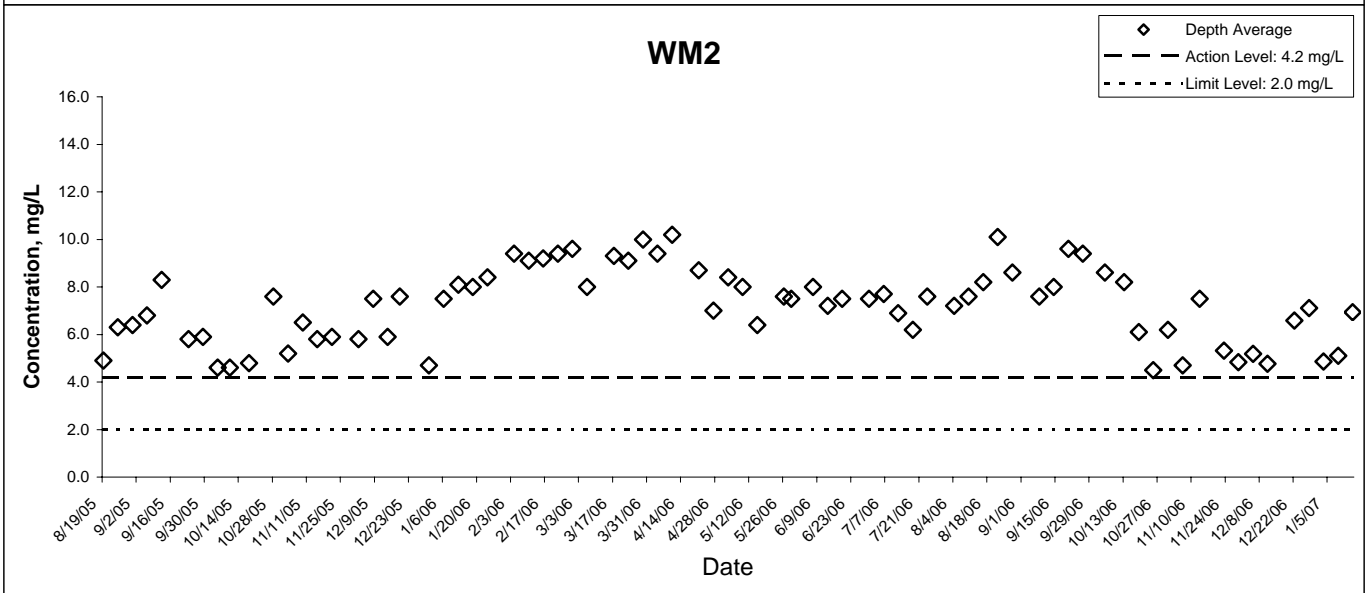
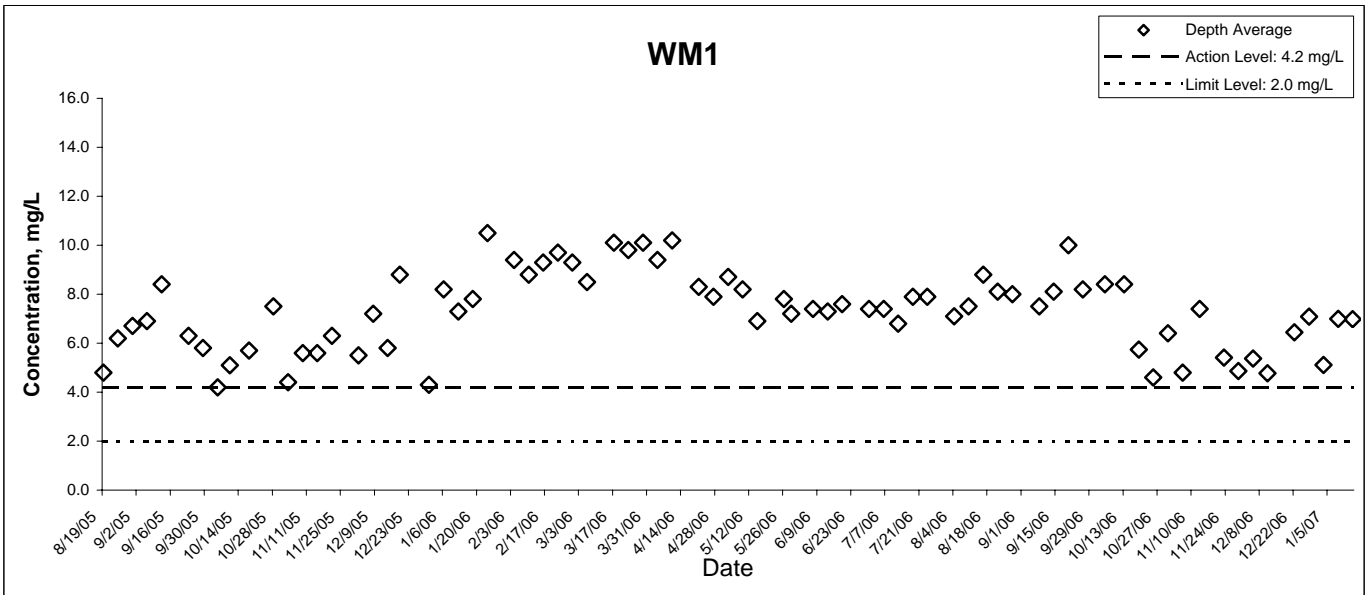
Water Quality Monitoring Results at WM5

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:59	Surface	1	0.2	<0.2	<0.02	<0.02	6.7	6.6	-	-	-	-	<0.01000	<0.01000	<0.00071	1.5	1.3	-	-	-
				Bottom	3.7	<0.1		<0.02		6.5		-		-		0.01			1.1		-		
28-Dec-06	Fine	Moderate	9:48	Surface	1	0.2	0.2	<0.02	<0.02	6.9	7.0	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00070	2.2	1.8	<1	<1	<2
				Bottom	3.5	0.2		<0.02		7.1		<2		4.0		<0.01000			1.3		<1		
3-Jan-07	Fine	Moderate	9:46	Surface	1	0.3	0.3	<0.02	<0.02	6.2	6.4	-	-	-	-	<0.01000	<0.01000	<0.00069	1.6	1.5	-	-	-
				Bottom	3.9	0.3		<0.02		6.5		-		-		<0.01000			1.4		-		
9-Jan-07	Sunny	Calm	9:52	Surface	1	<0.1	<0.1	<0.02	<0.02	7.4	7.4	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00068	1.5	1.5	<1	<1	<2
				Bottom	3.5	0.1		<0.02		7.4		<2		3.0		<0.01000			1.4		<1		
15-Jan-07	Cloudy	Calm	9:54	Surface	1	0.3	0.3	<0.02	<0.02	7.5	7.5	-	-	-	-	0.01	0.010	<0.00067	1.4	1.5	-	-	-
				Bottom	3.6	0.3		<0.02		7.5		-		-		0.01			1.5		-		

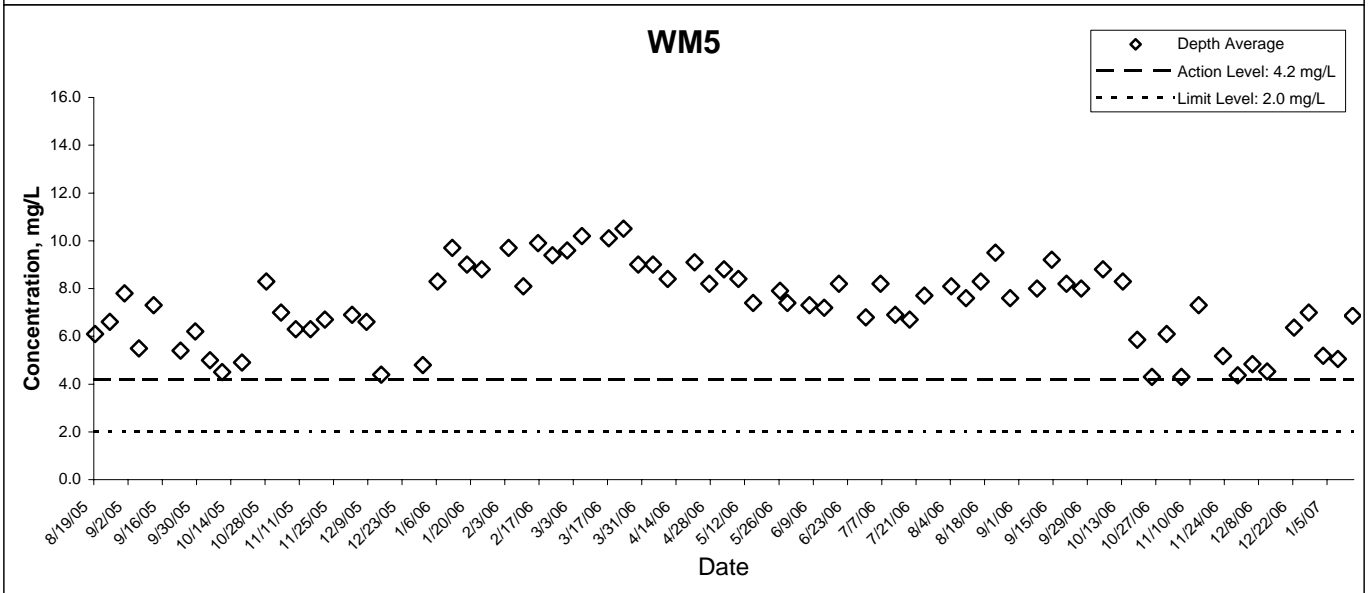
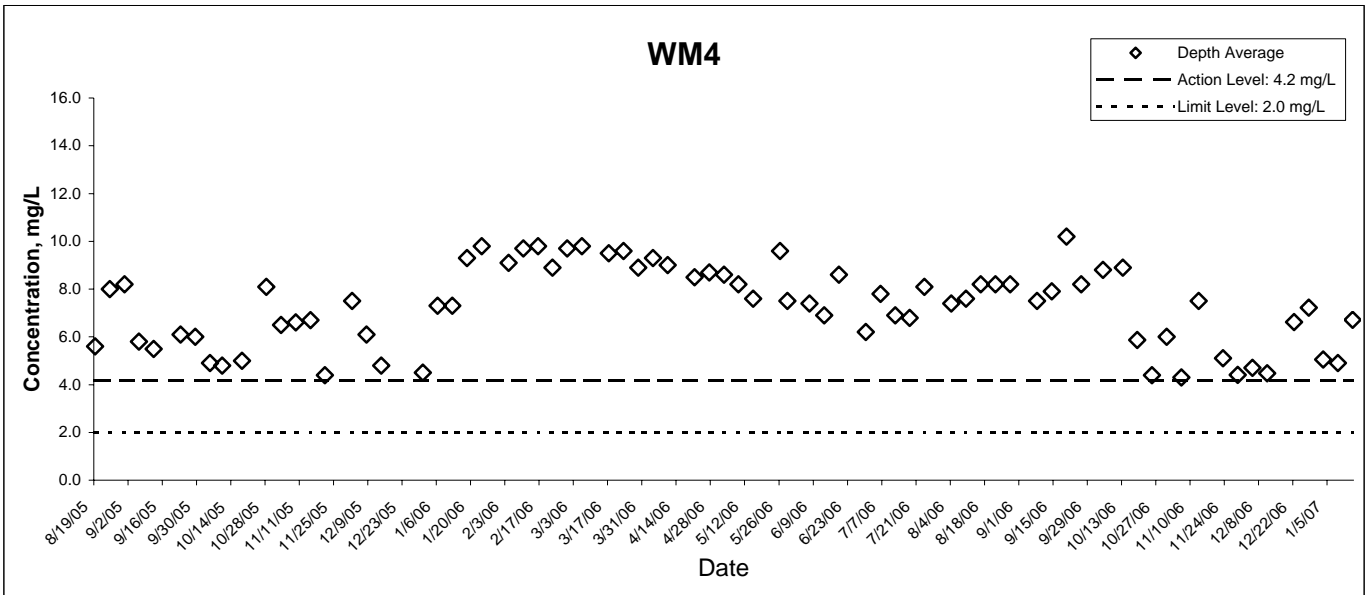
Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
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Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

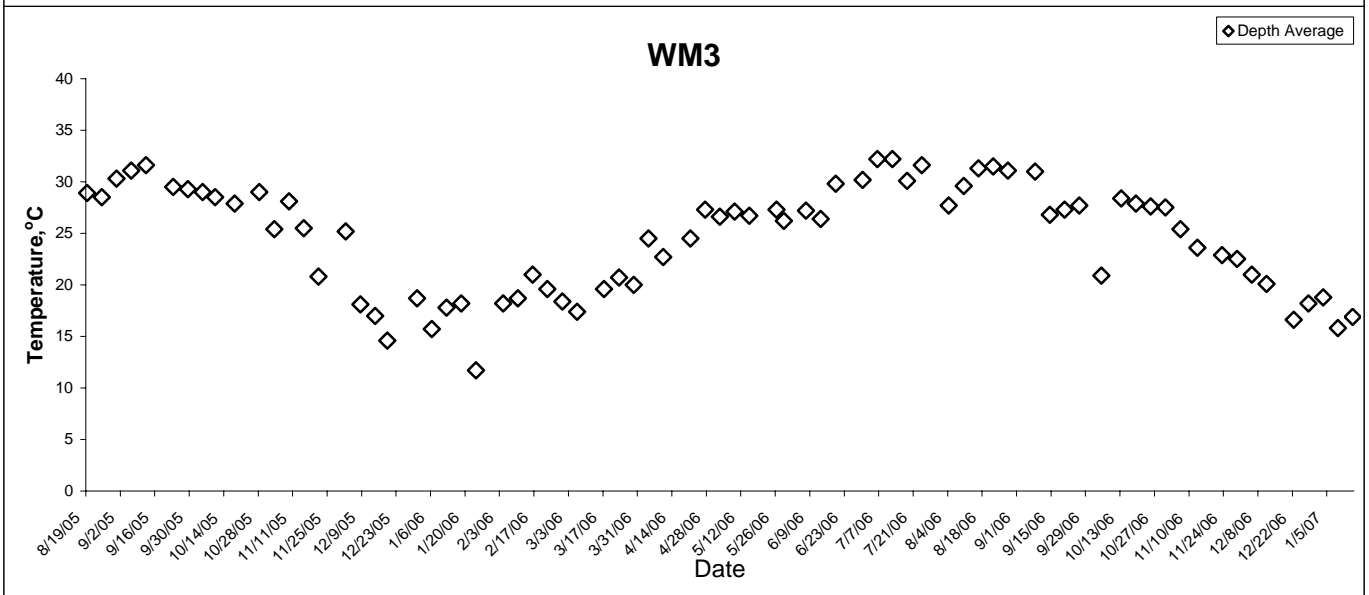
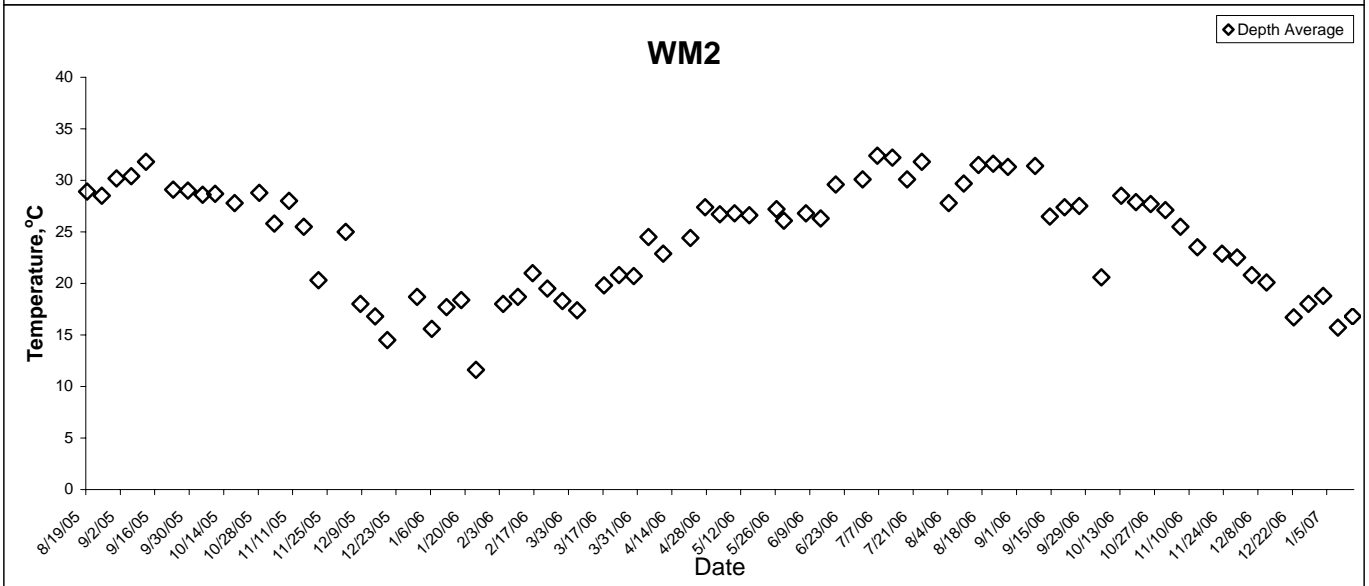
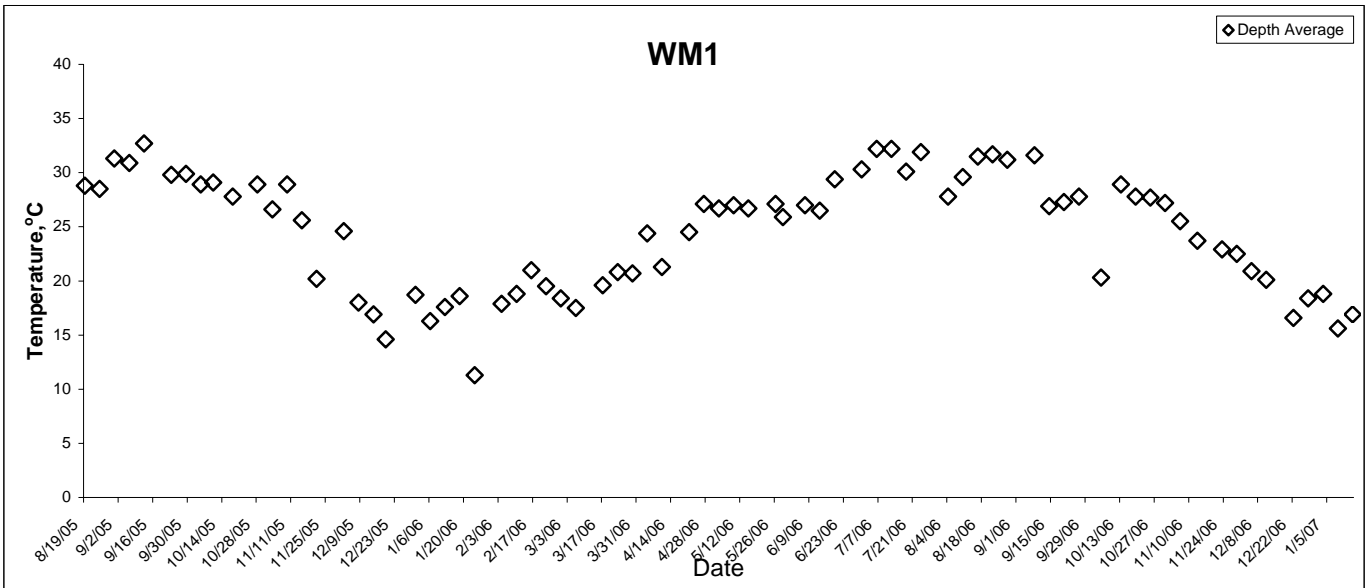
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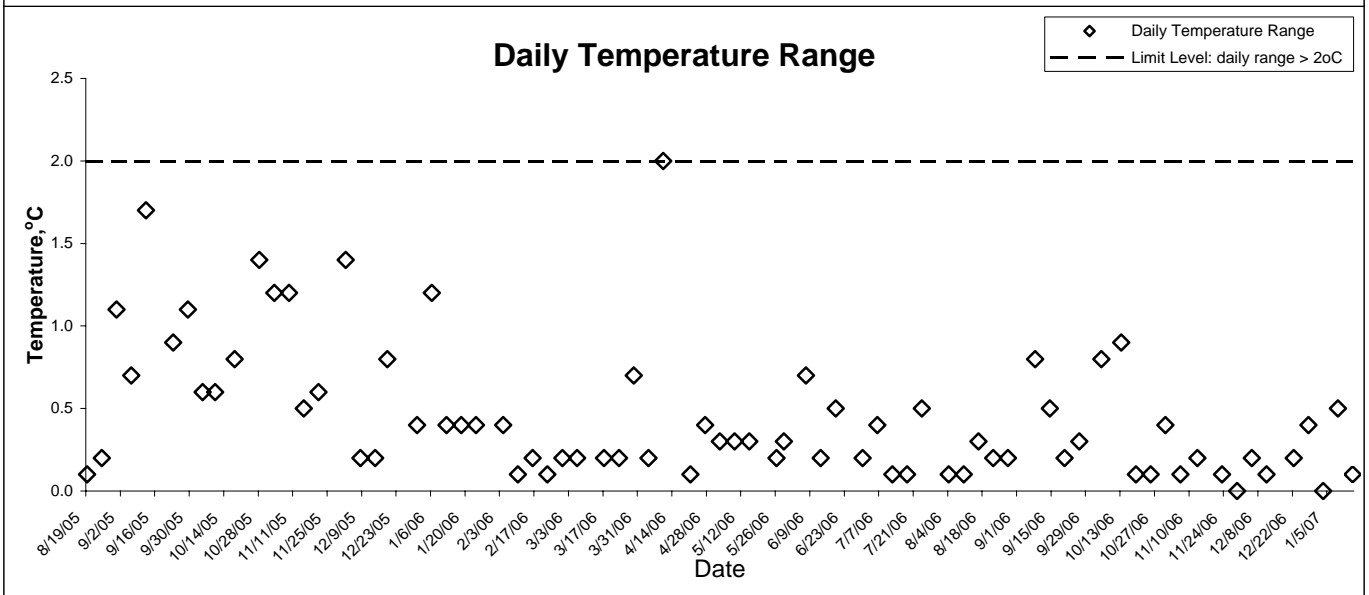
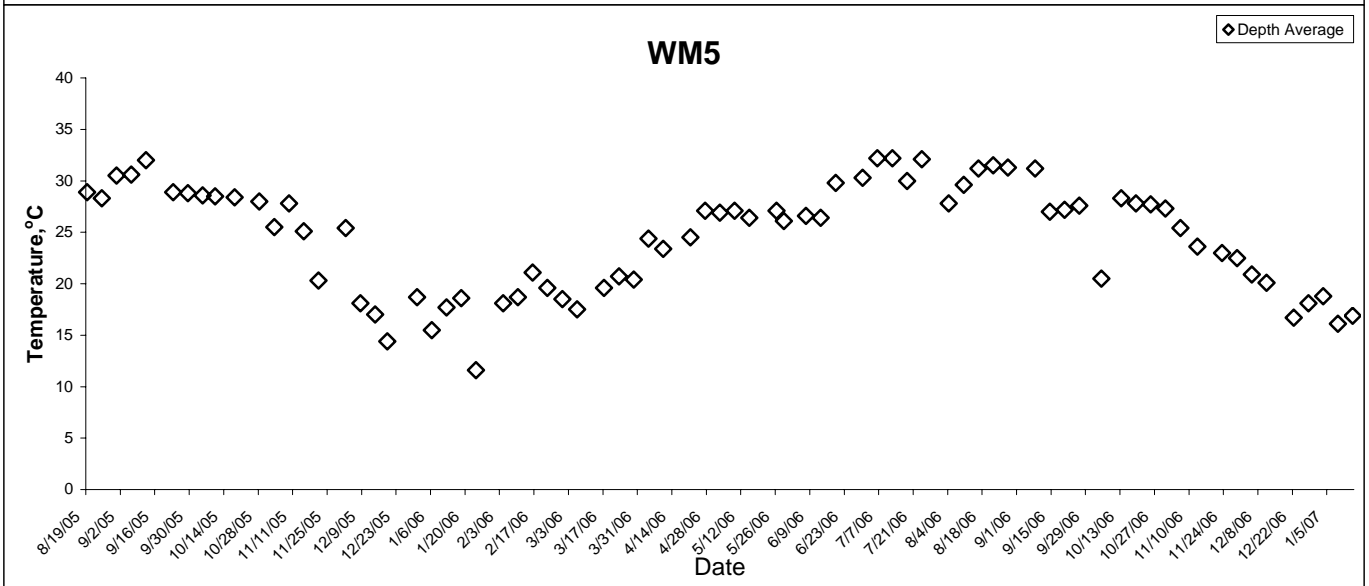
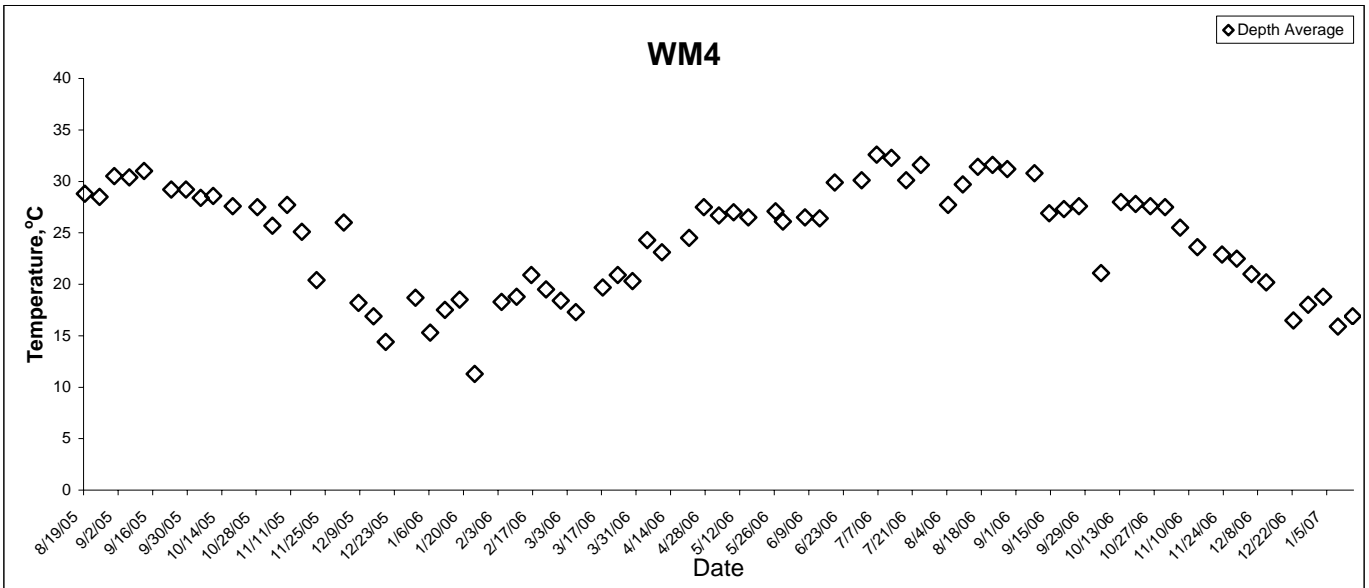
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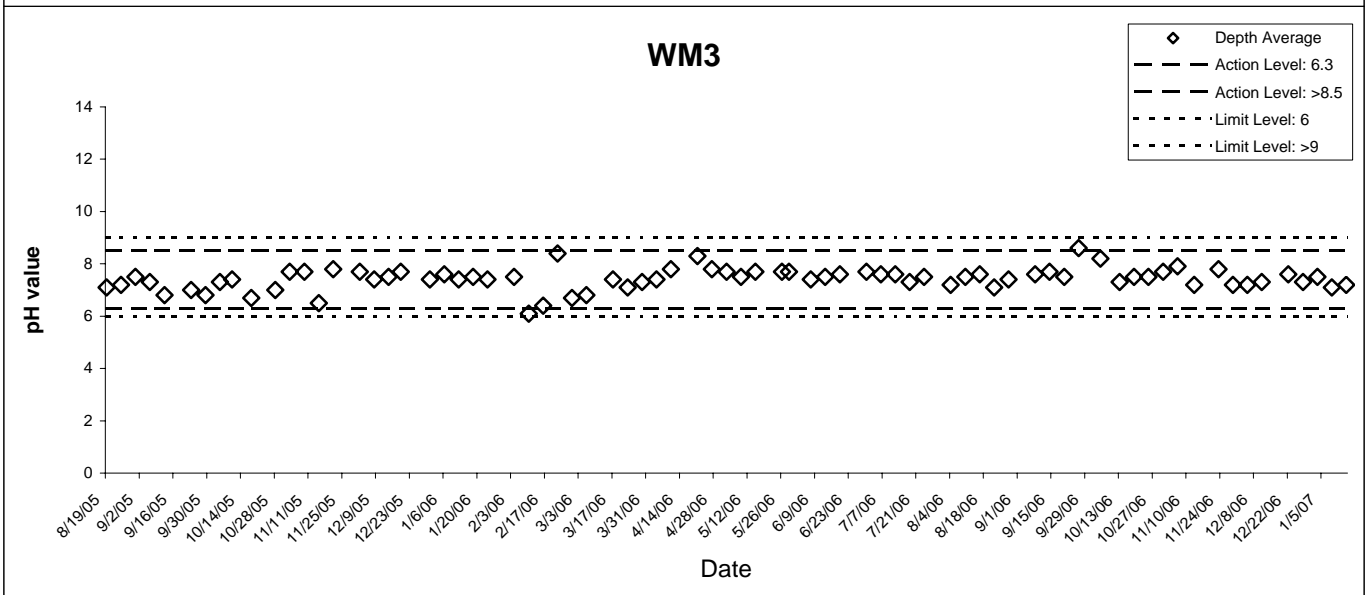
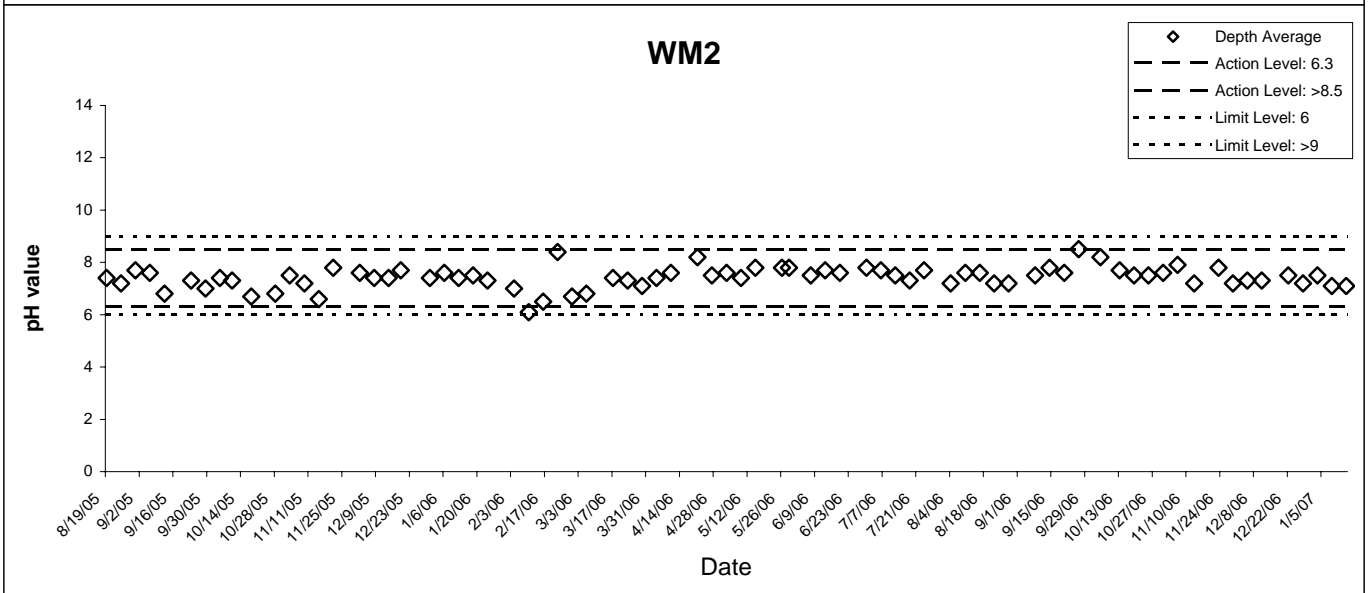
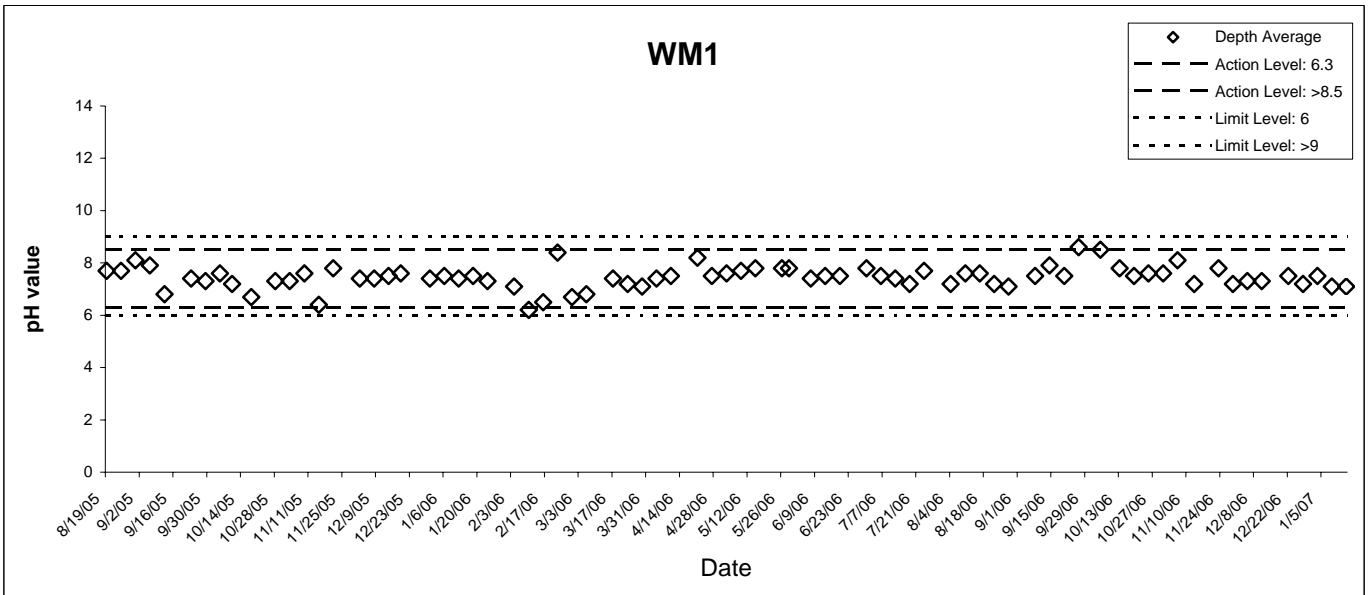
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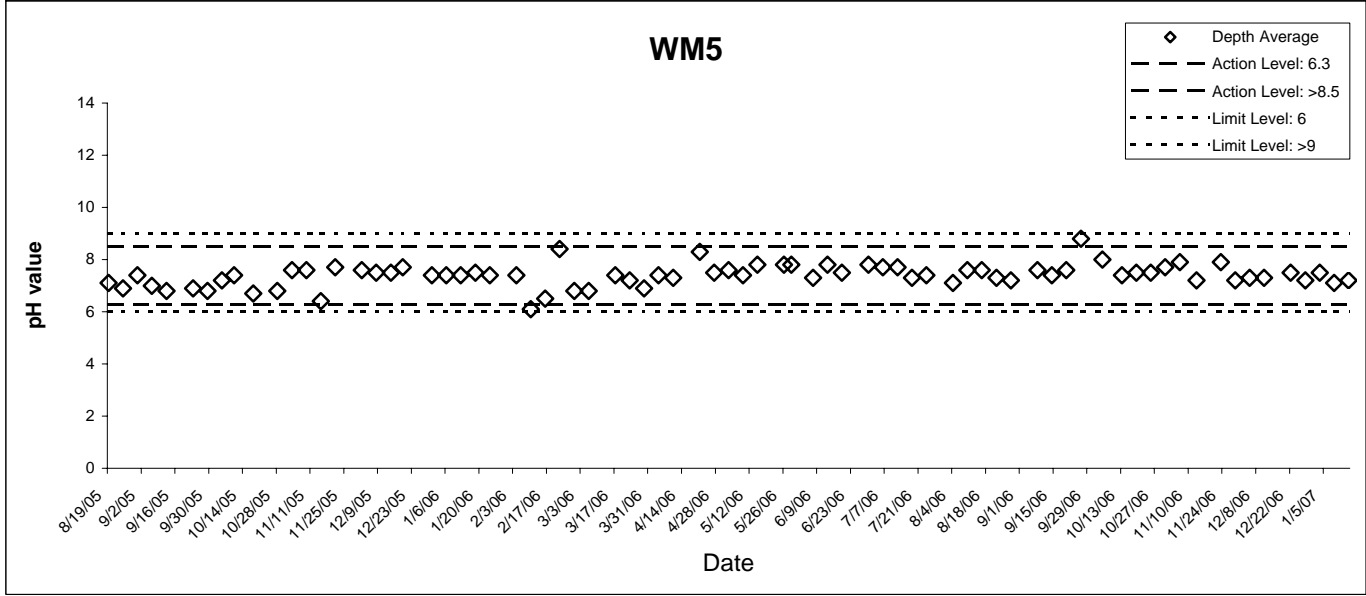
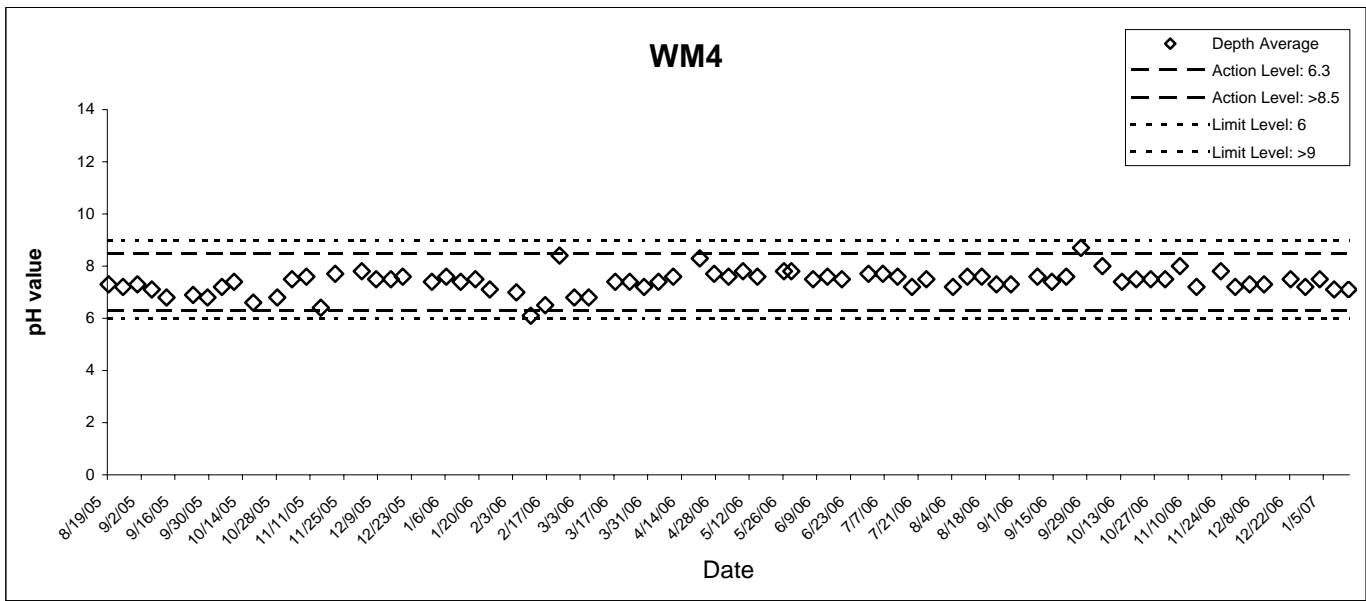
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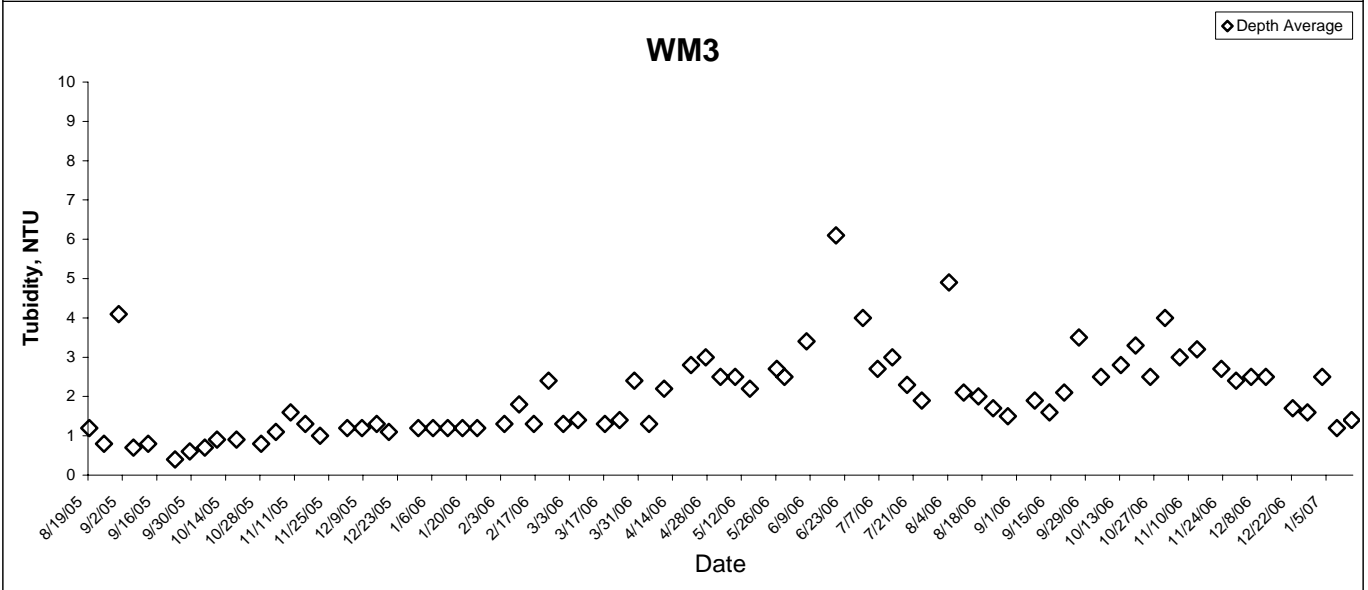
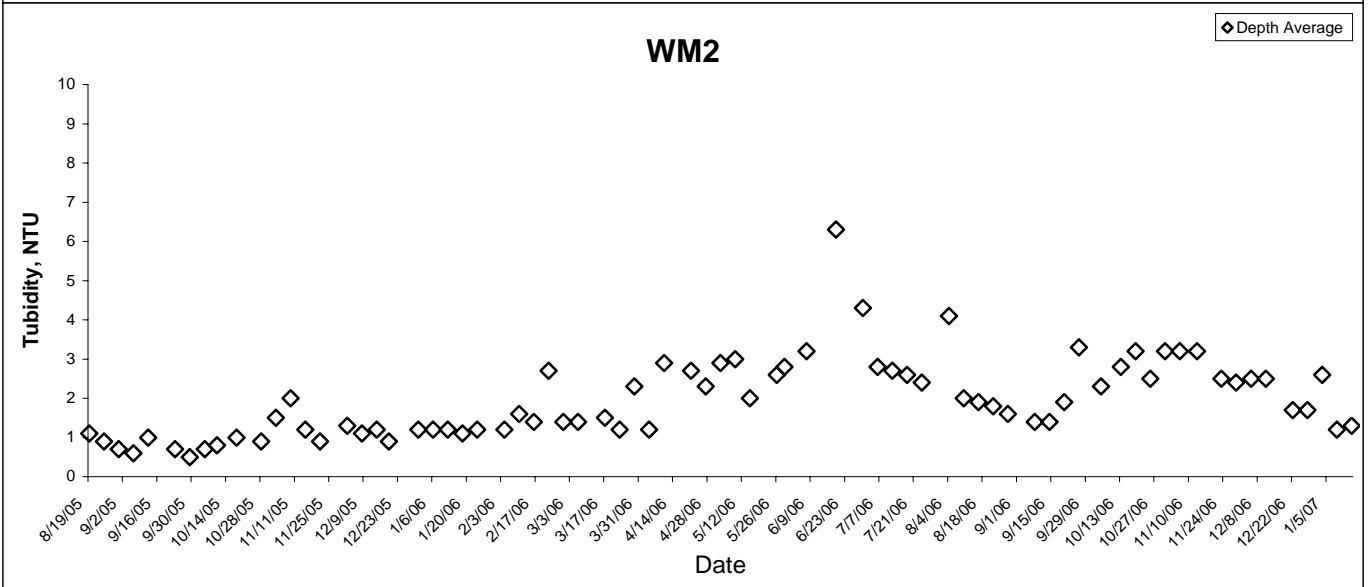
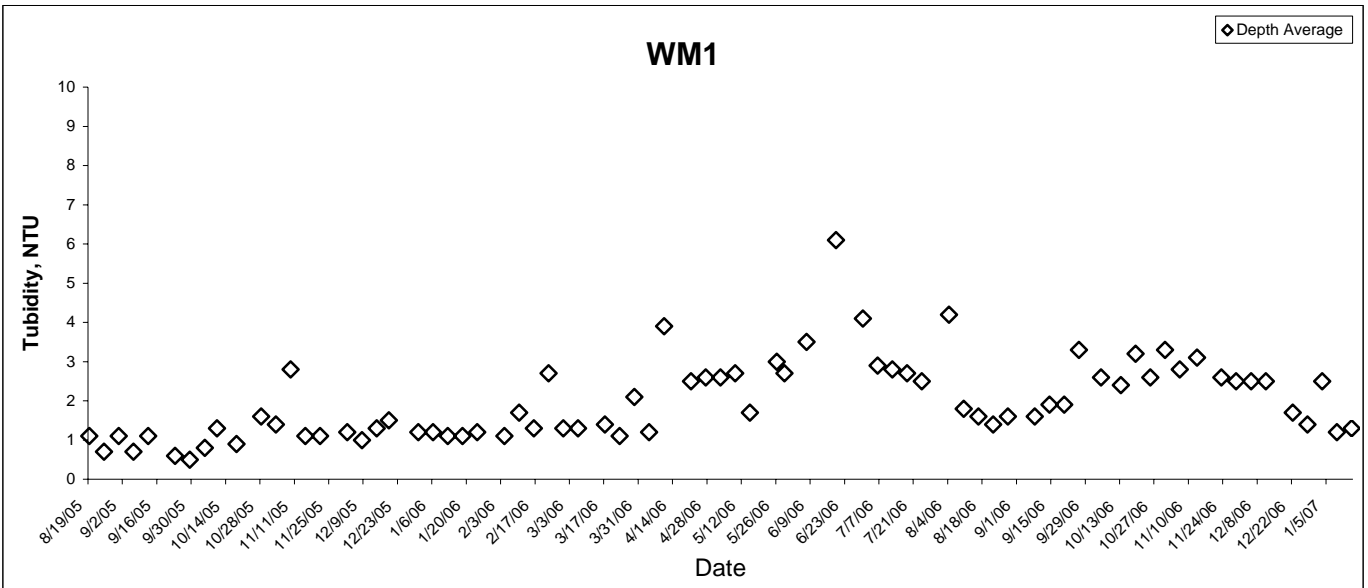
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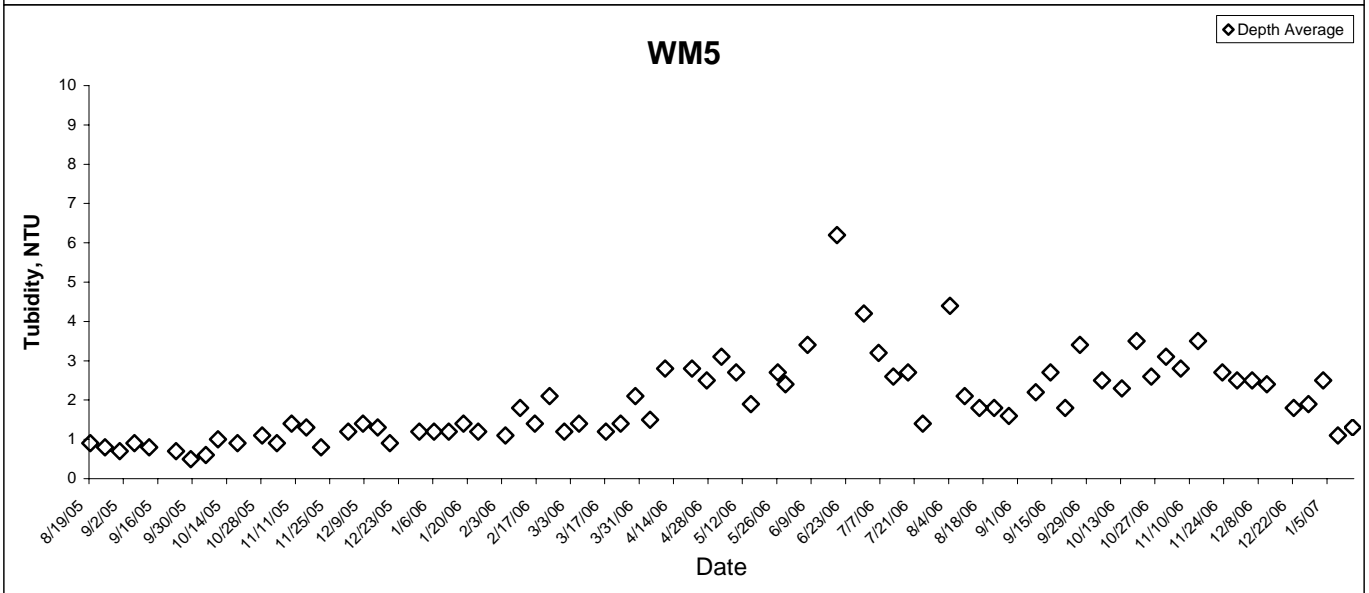
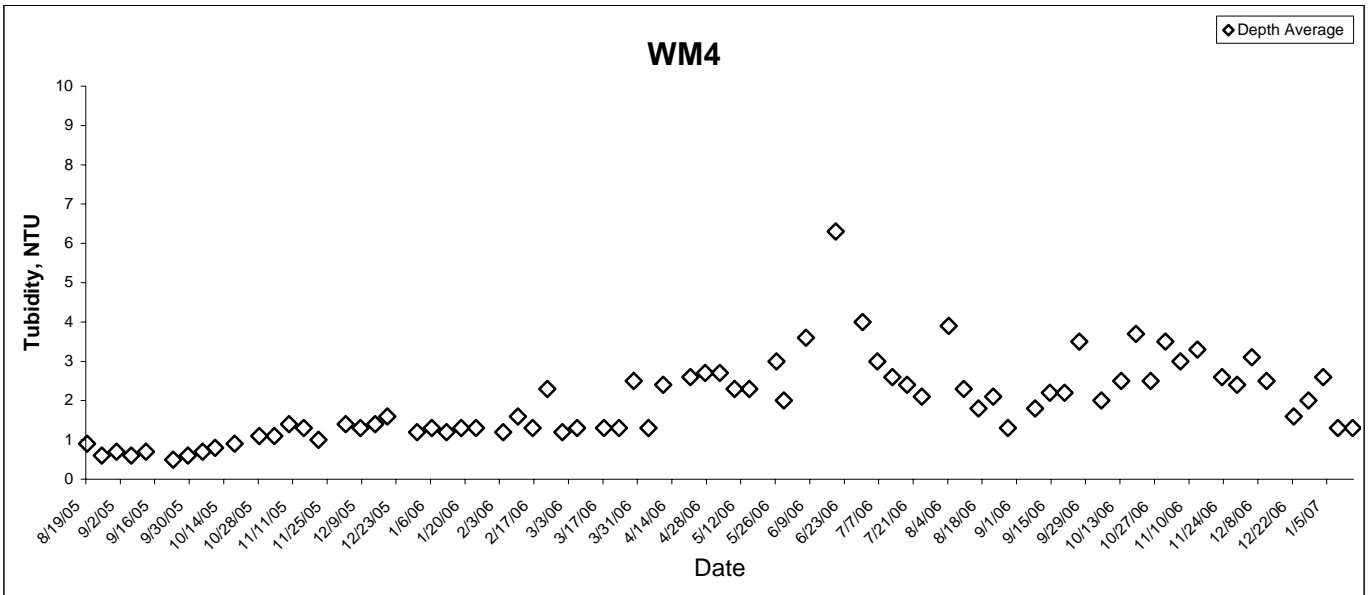
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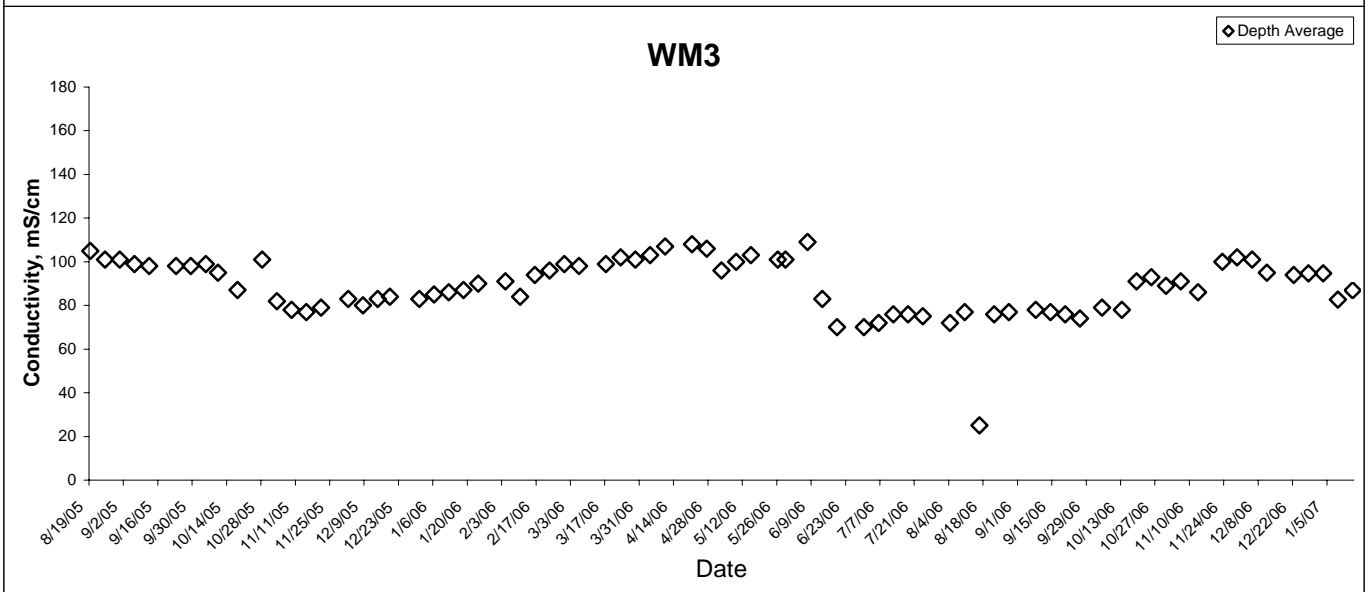
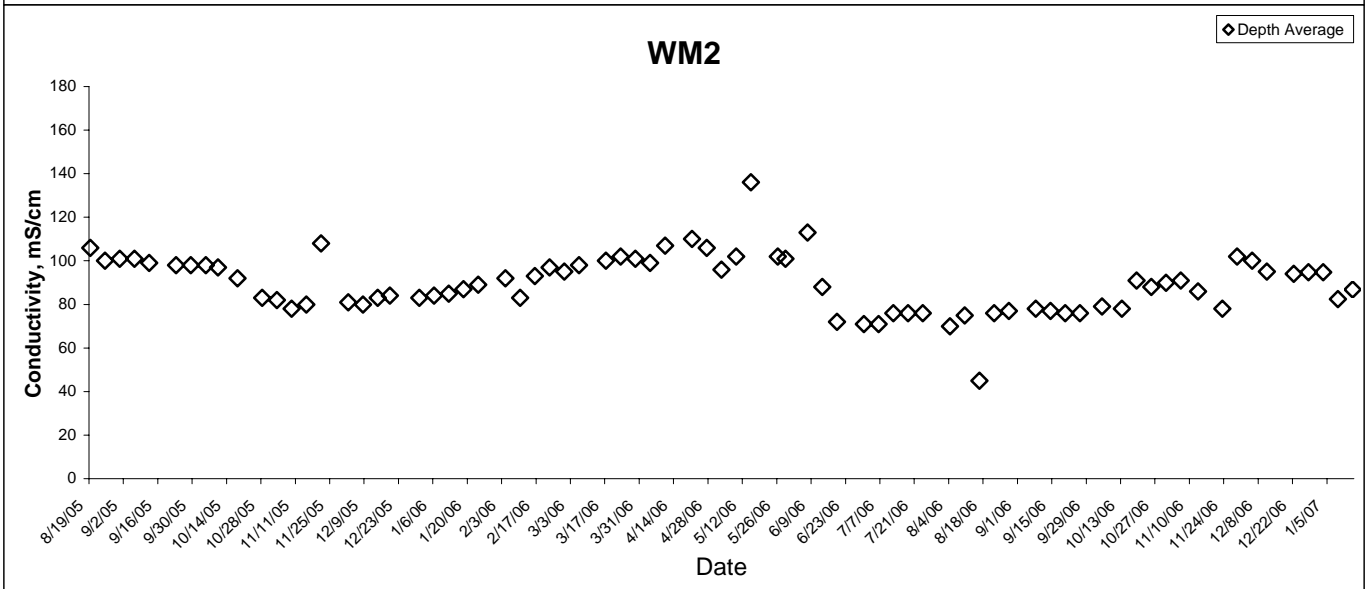
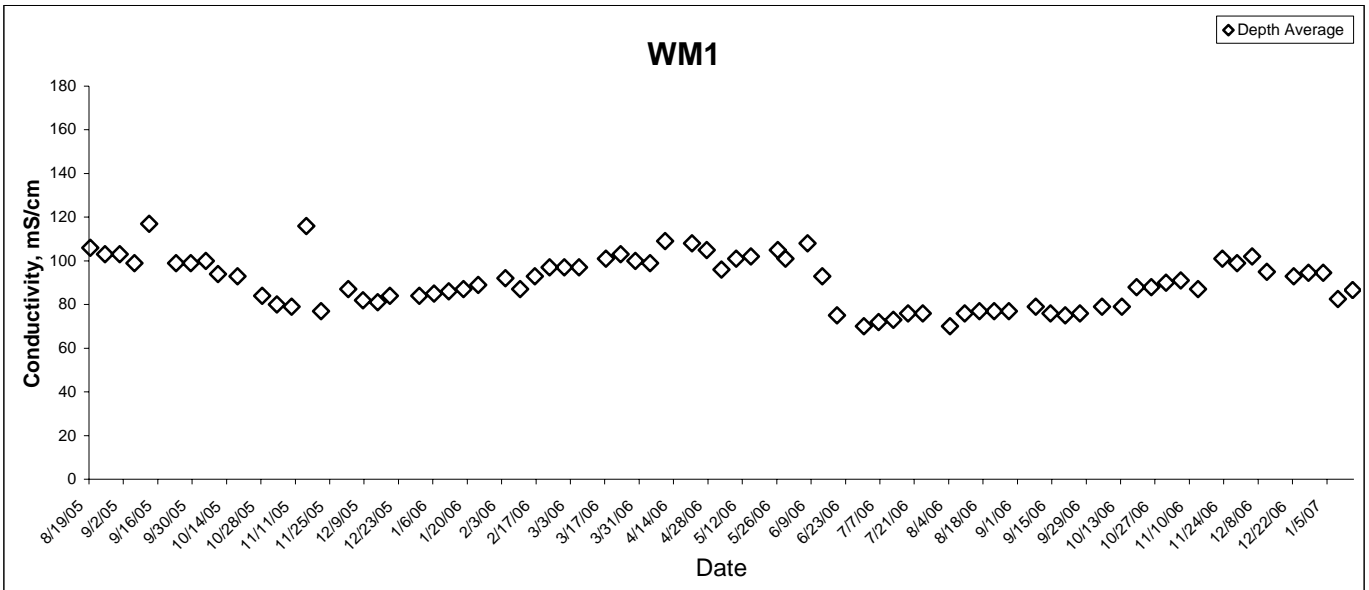
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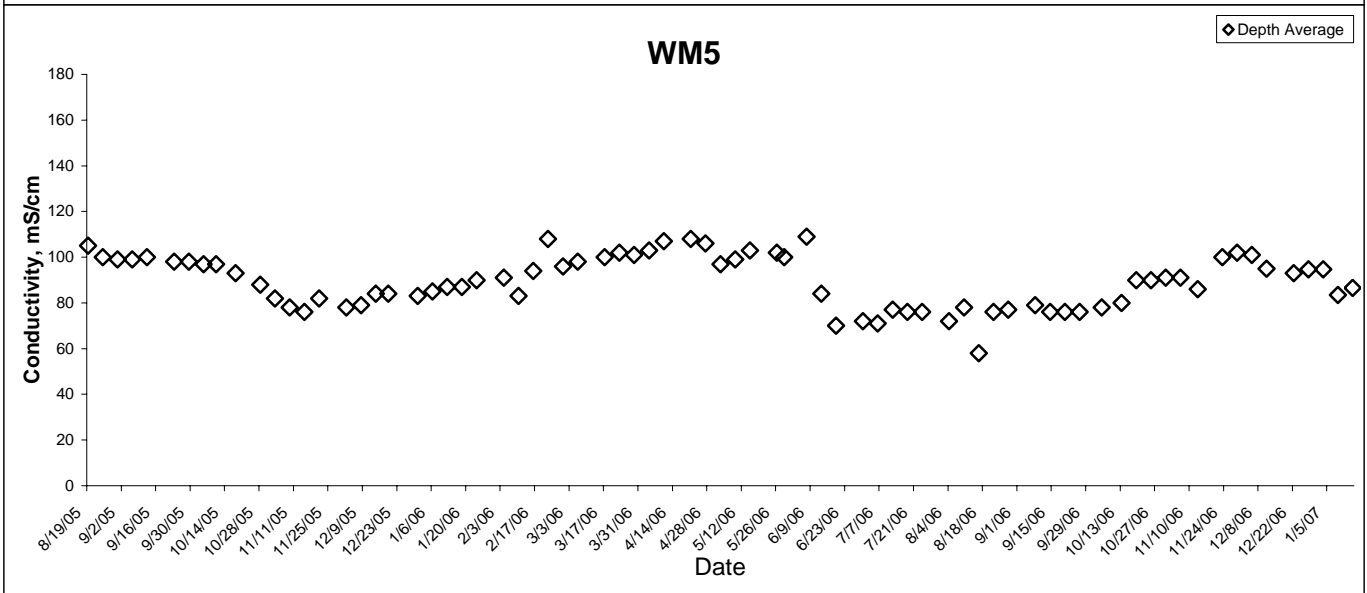
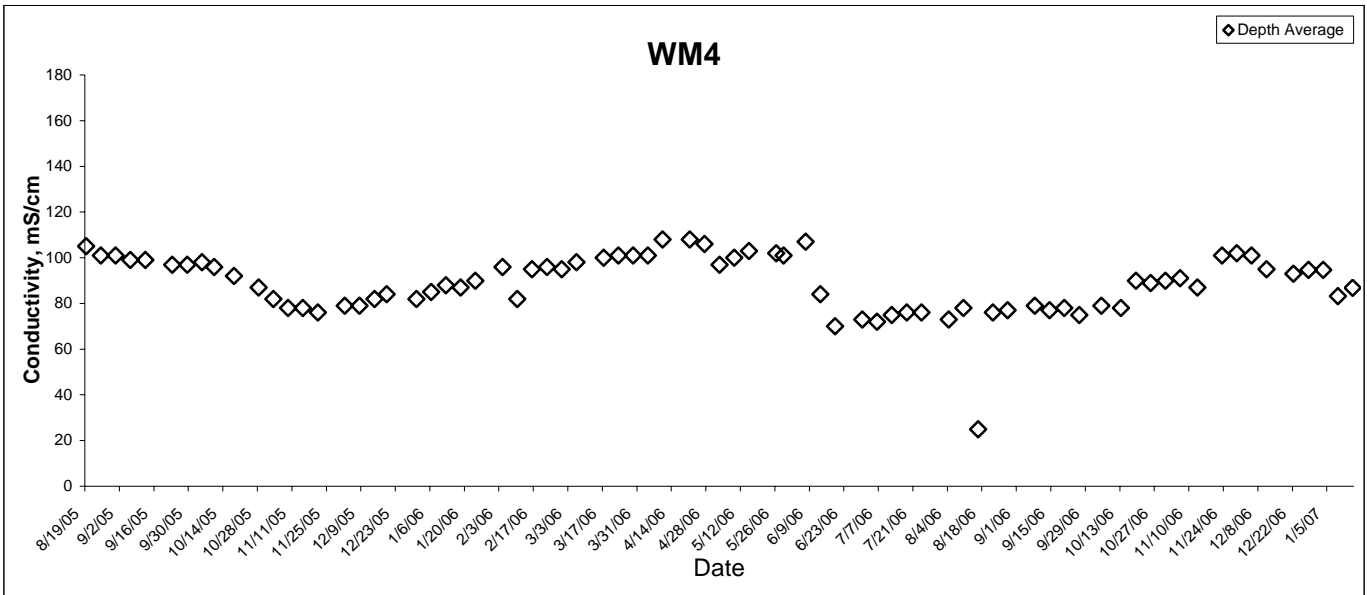
Turbidity



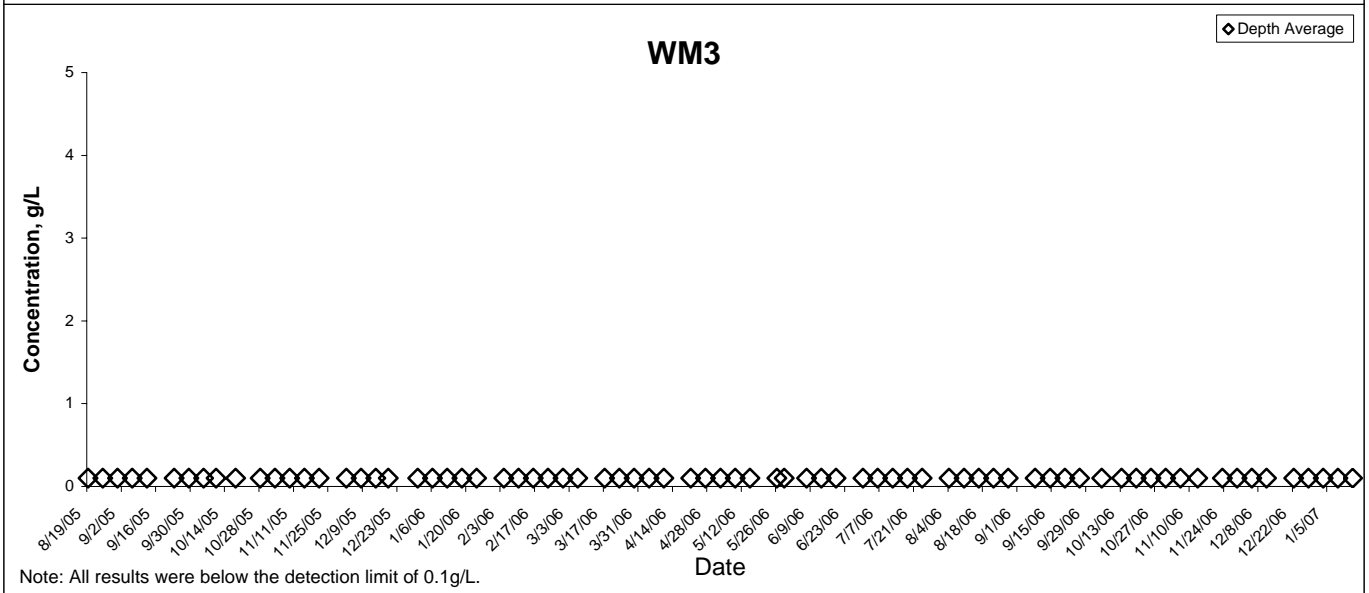
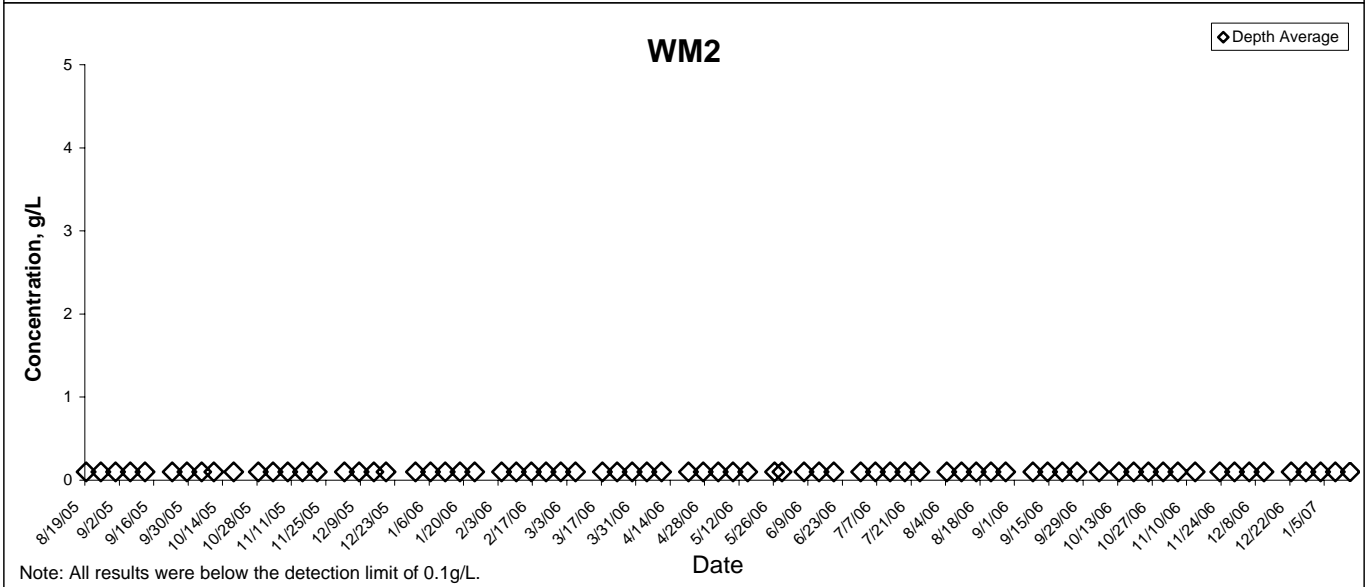
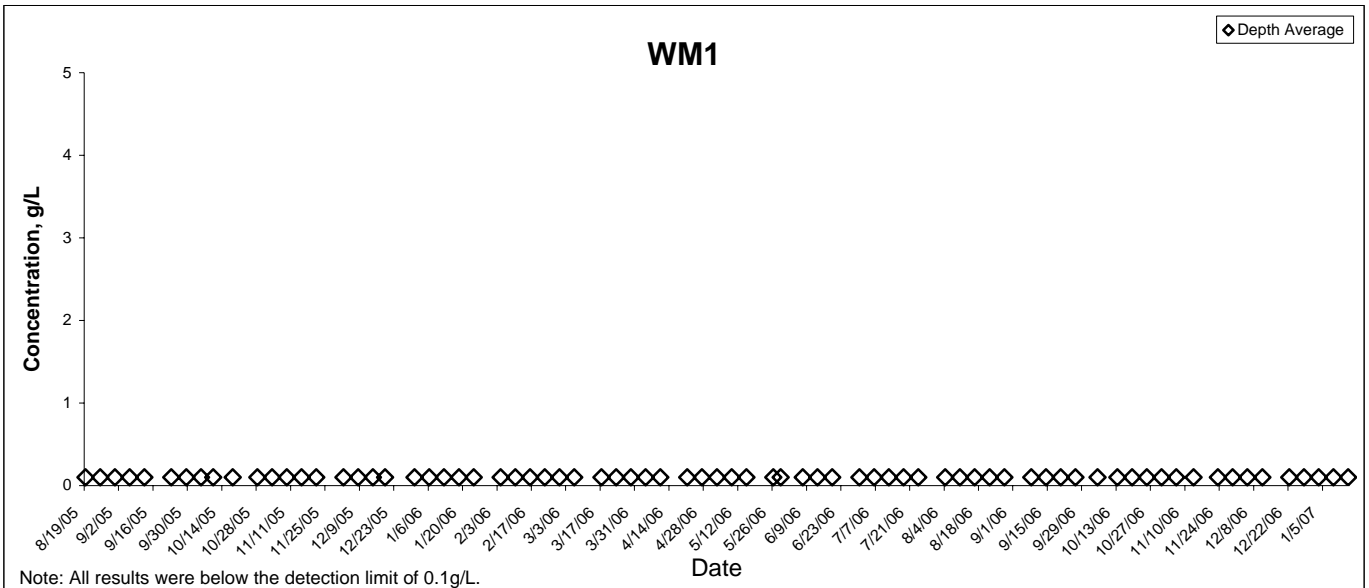
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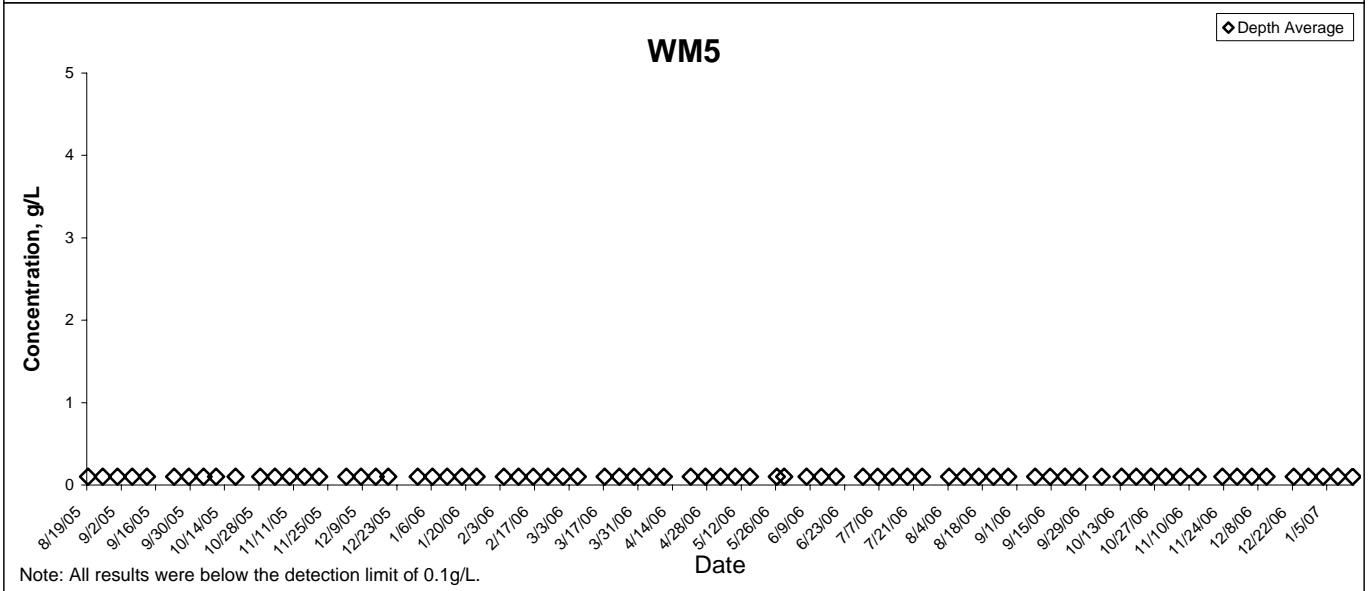
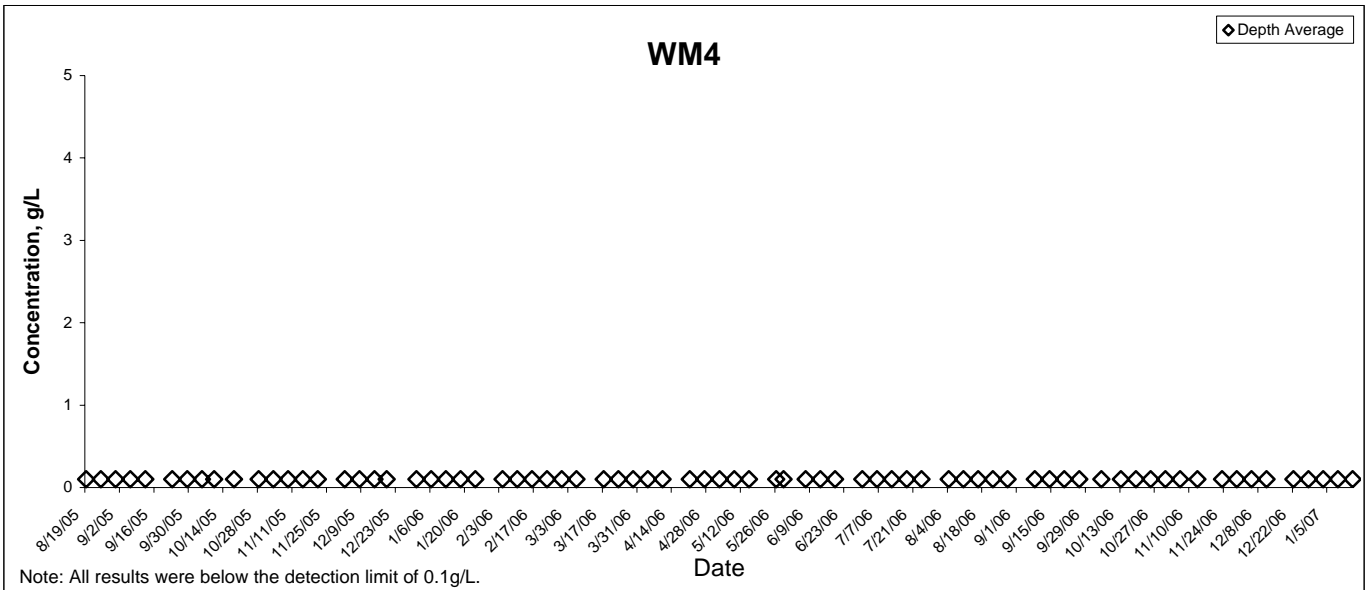
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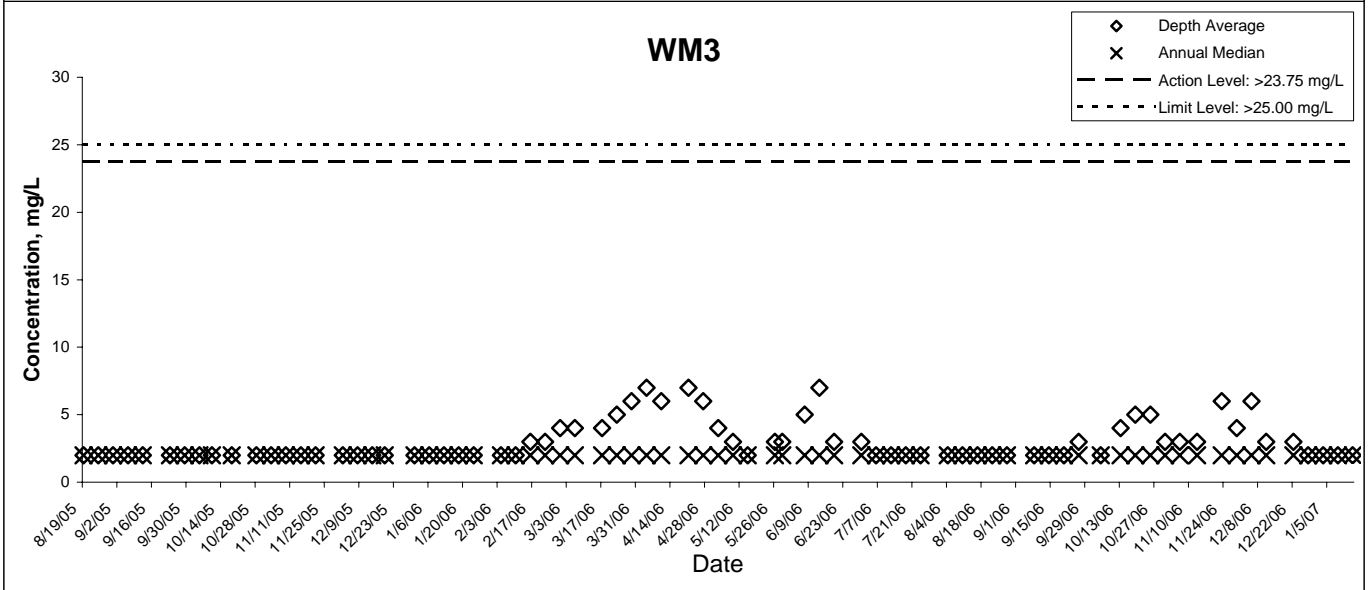
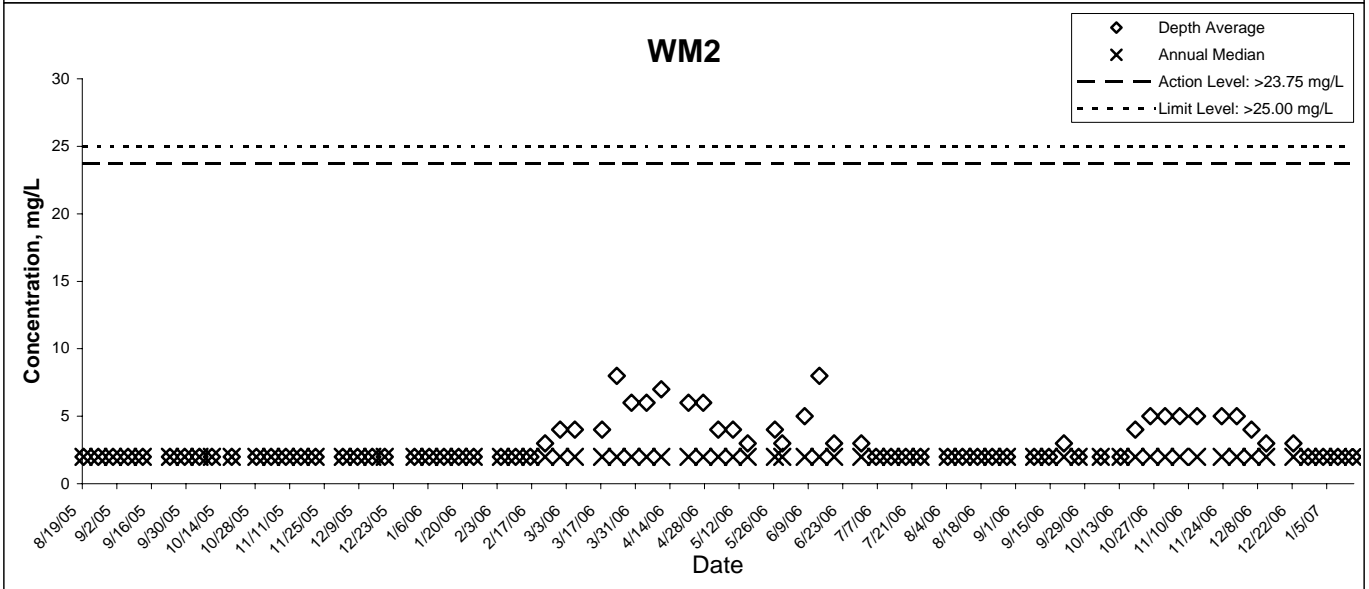
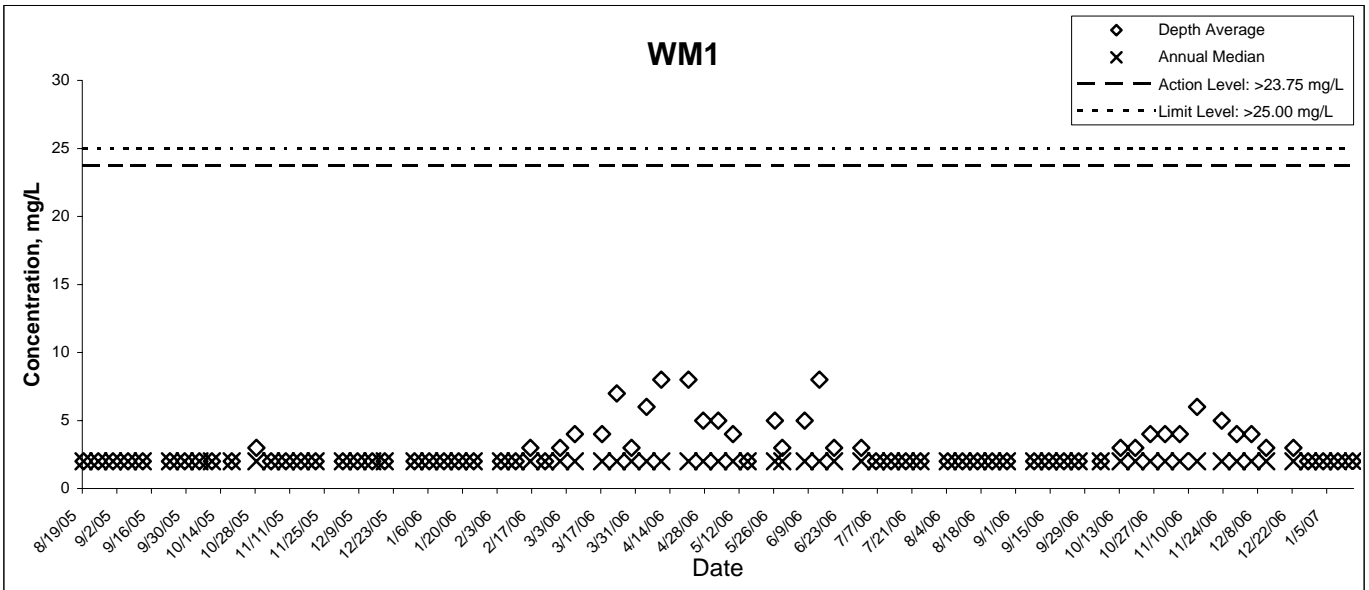
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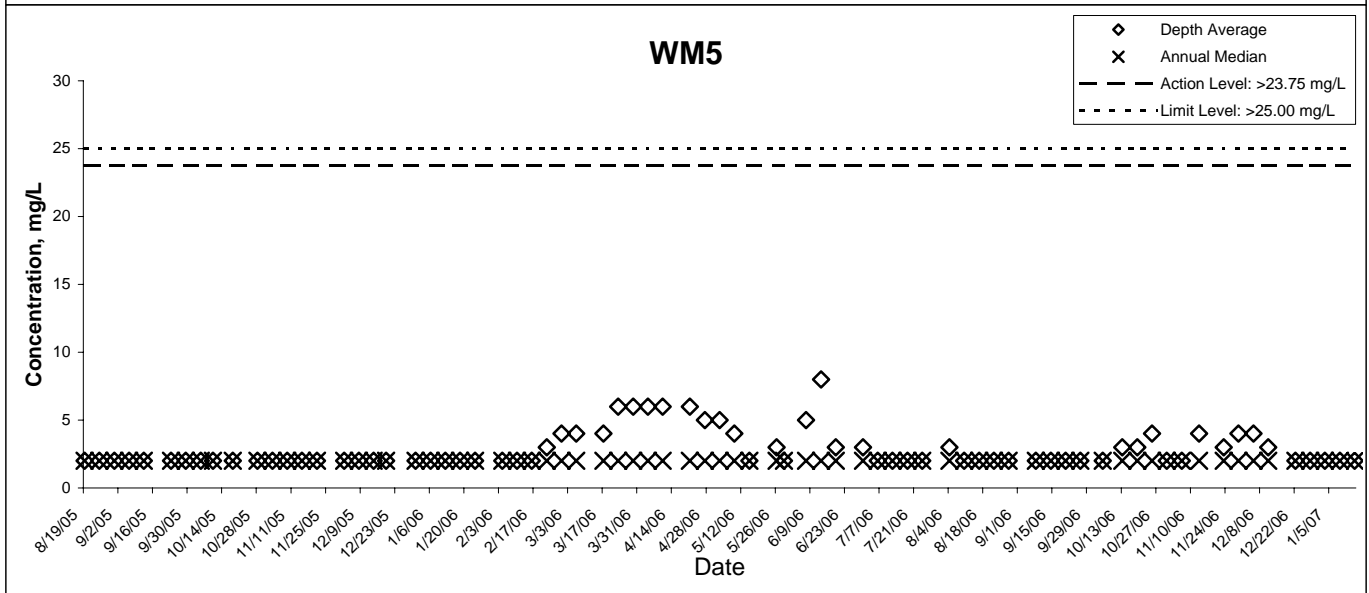
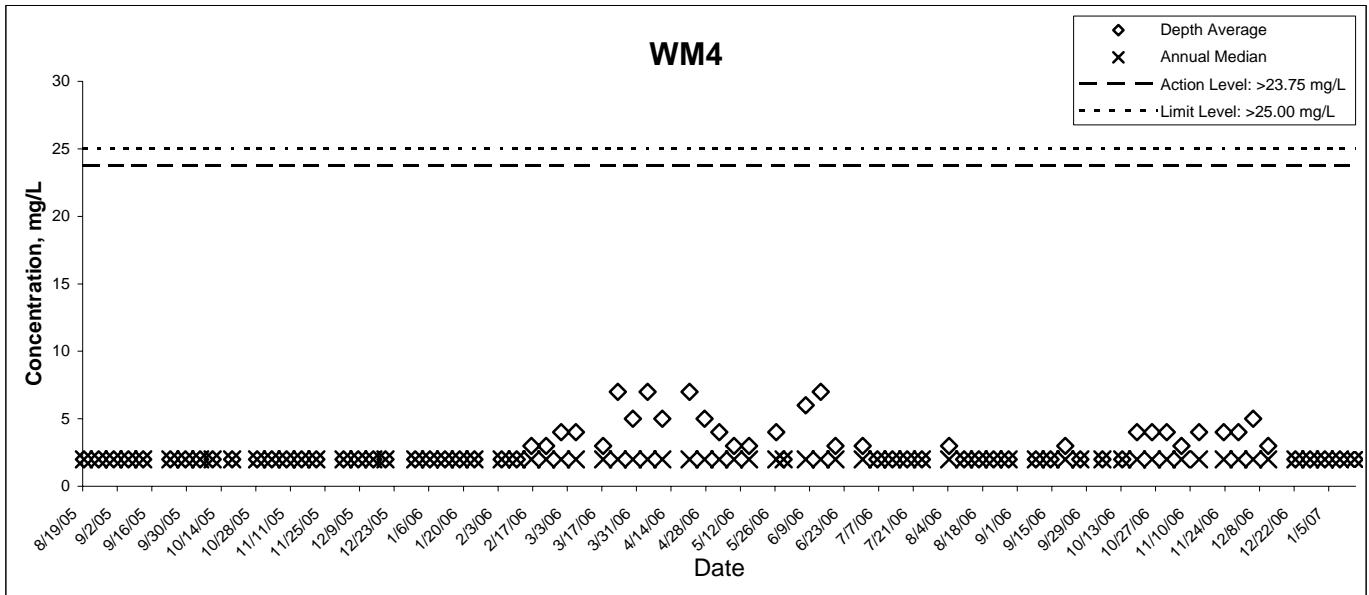
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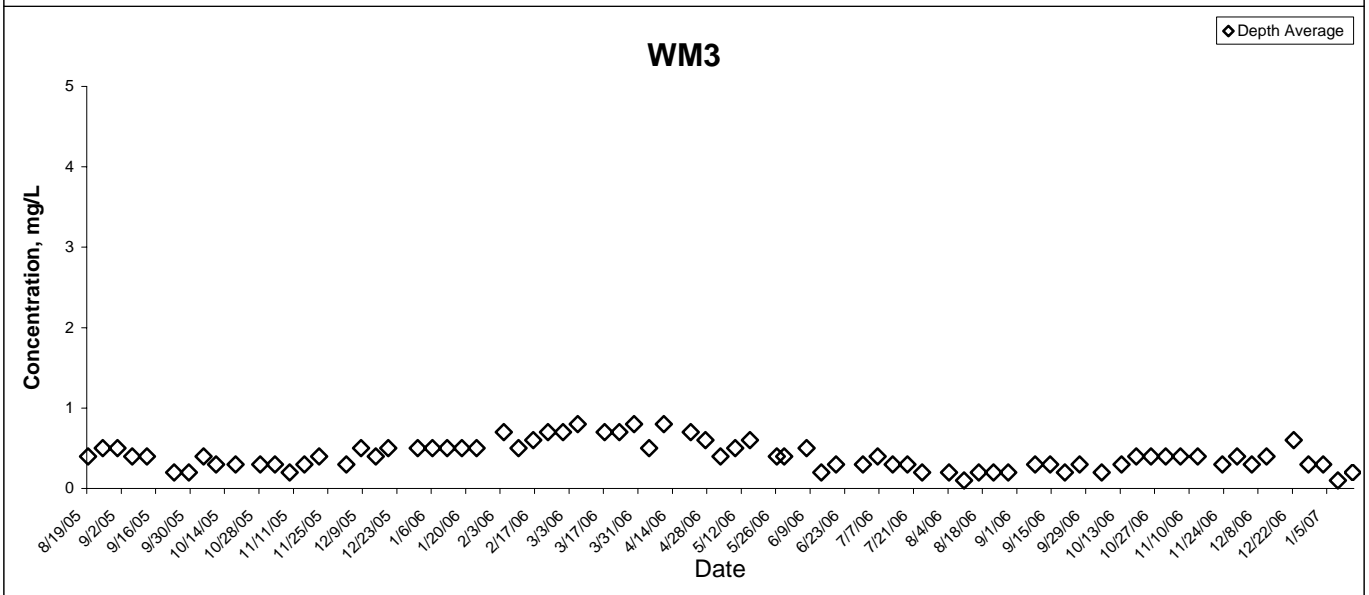
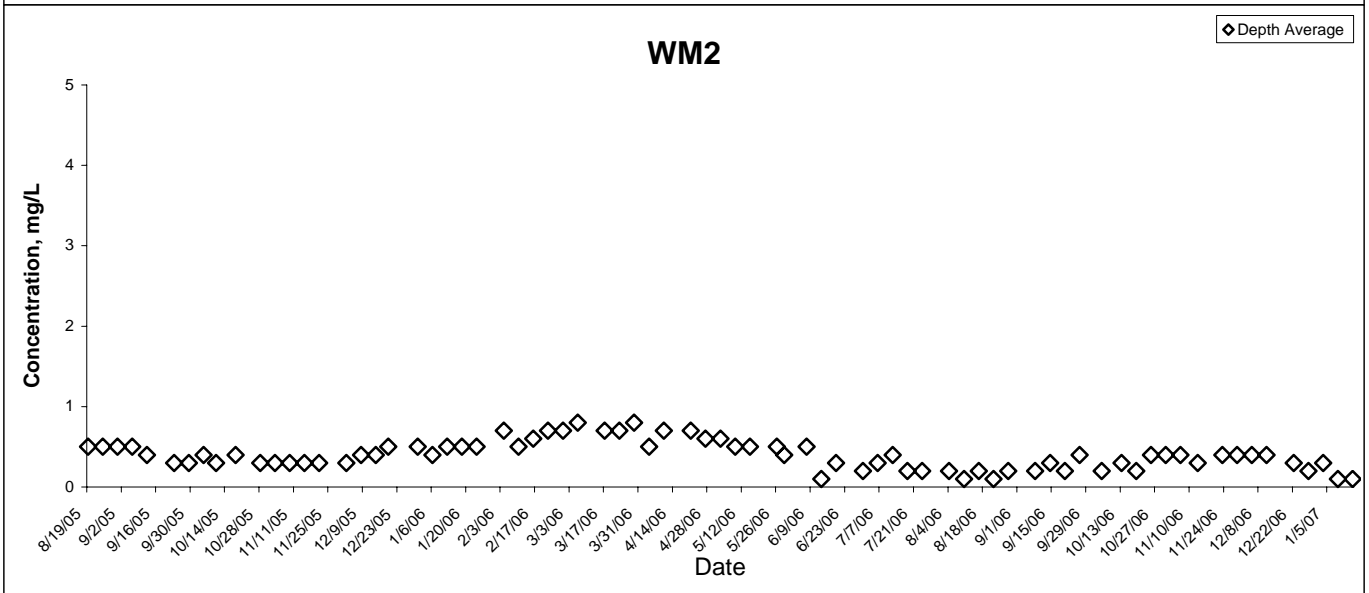
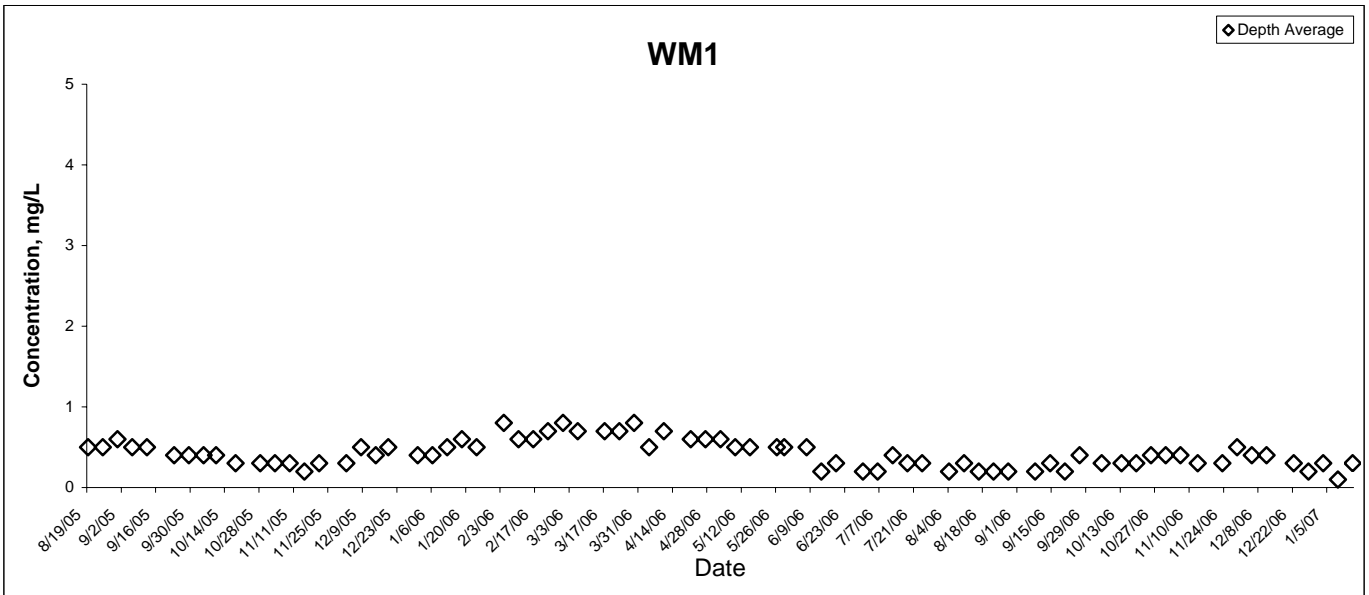
Suspended Solids



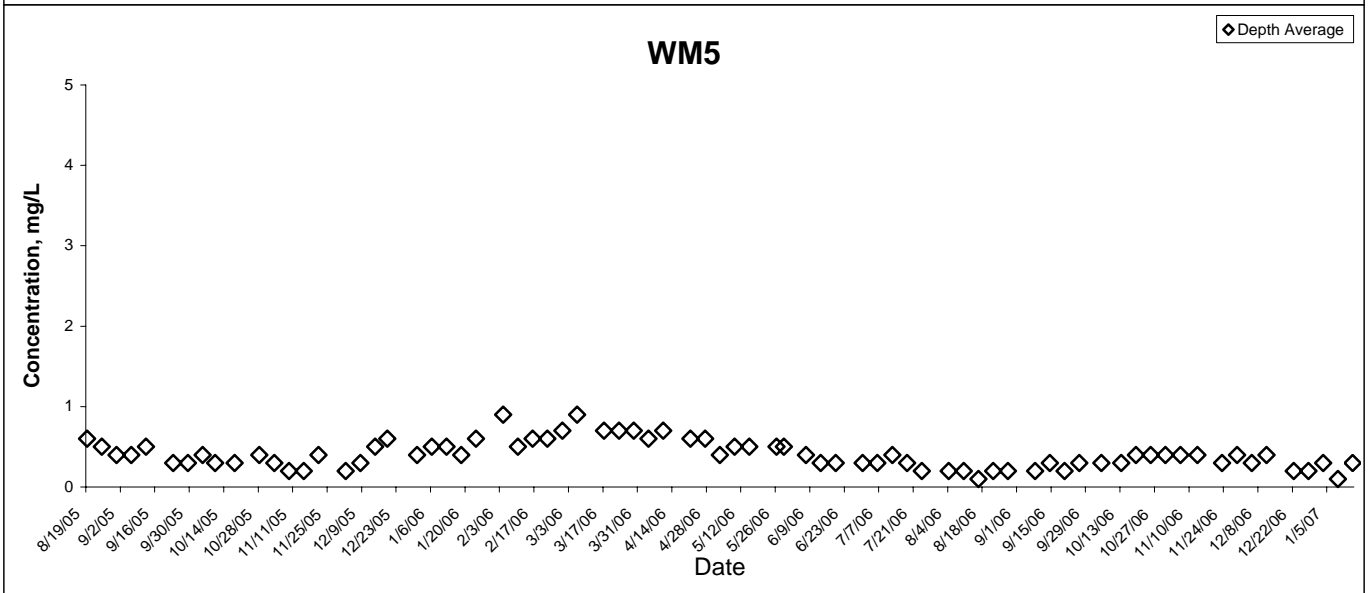
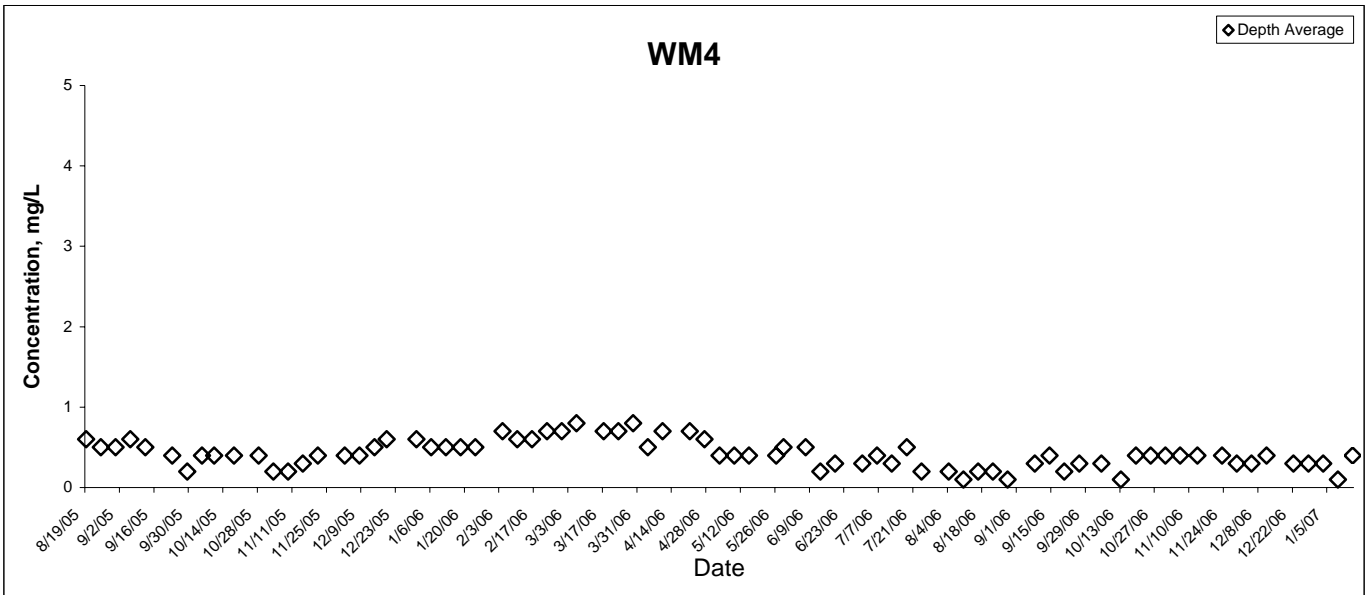
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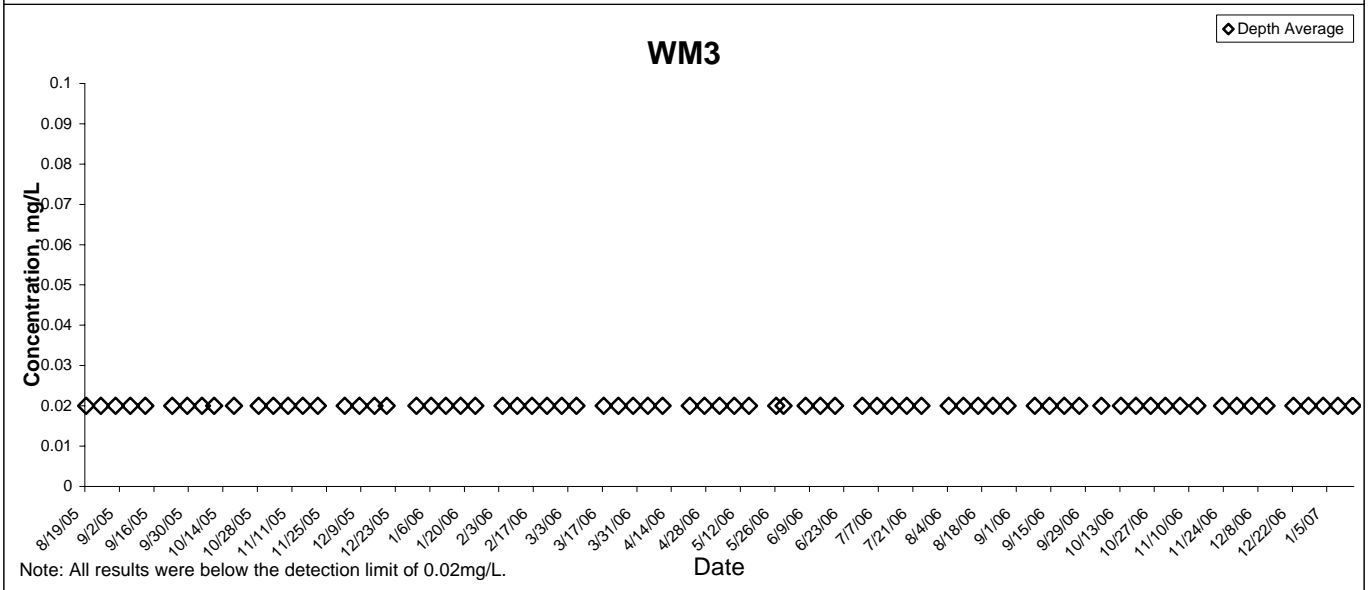
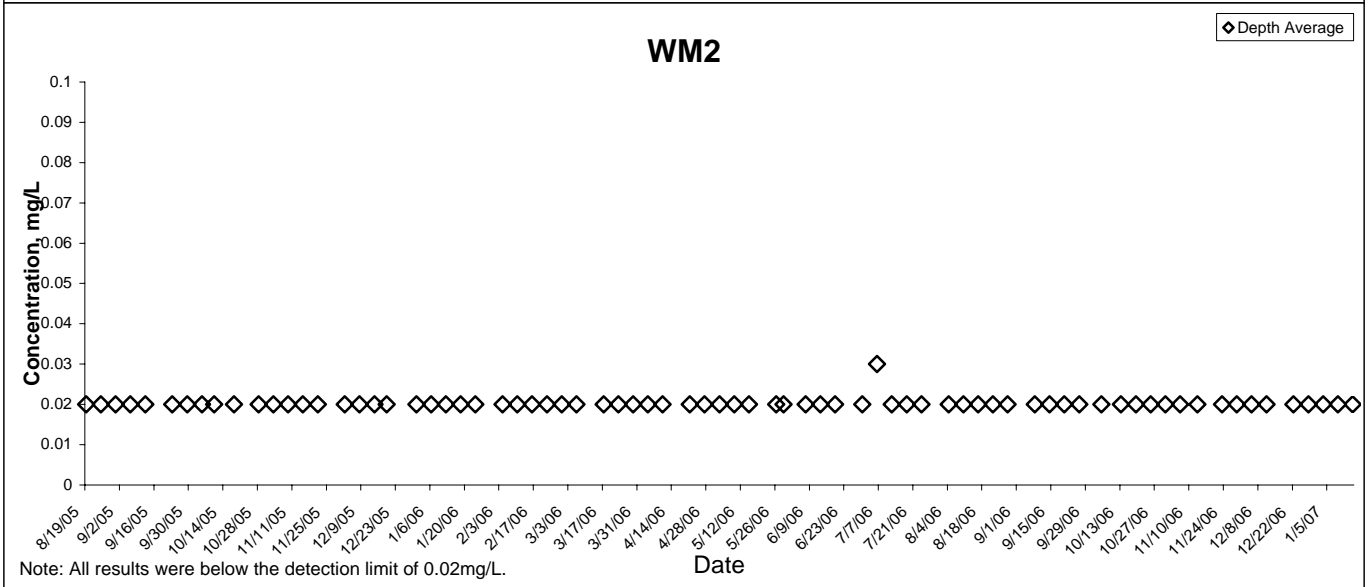
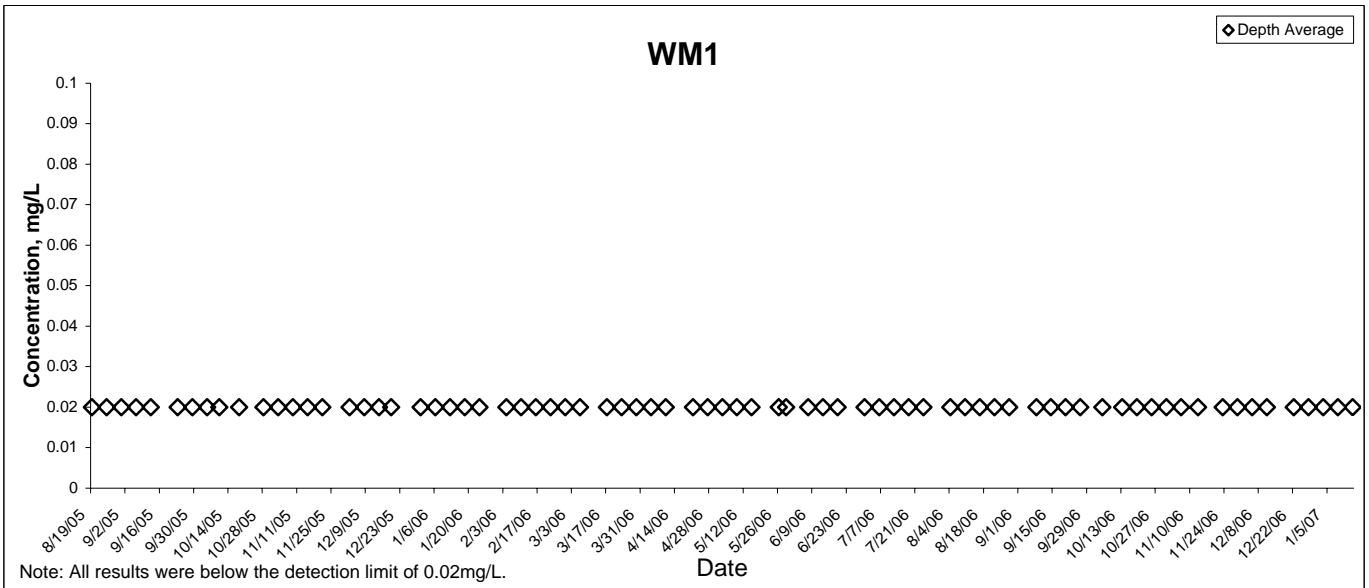
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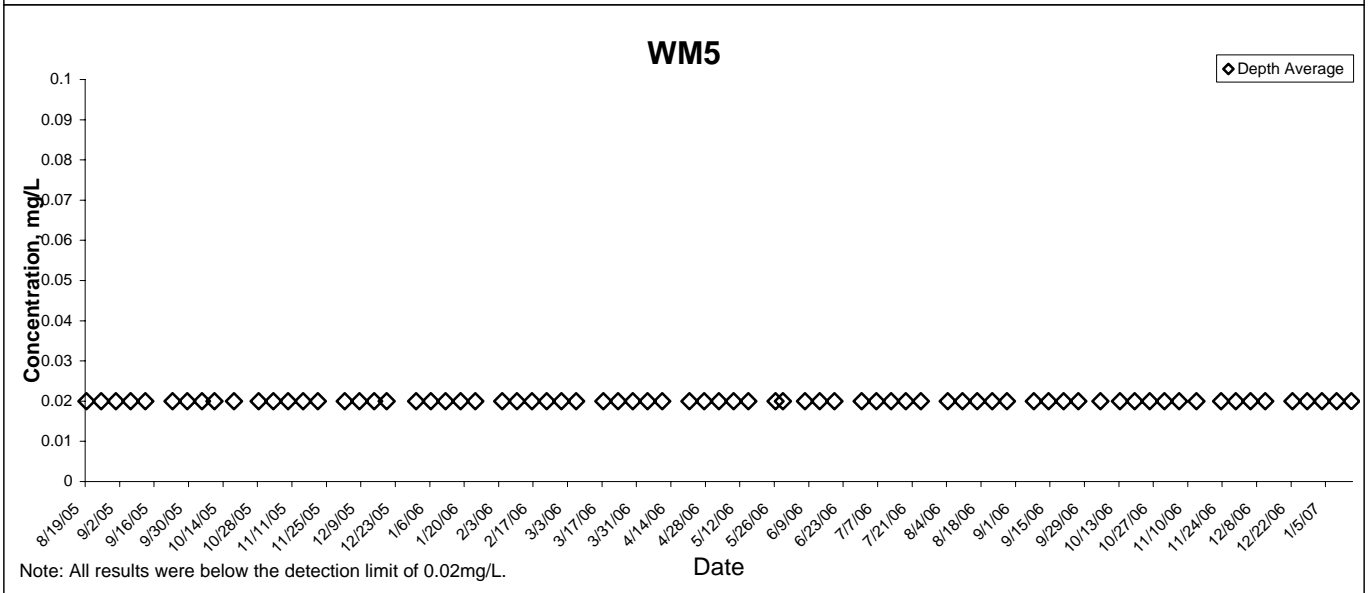
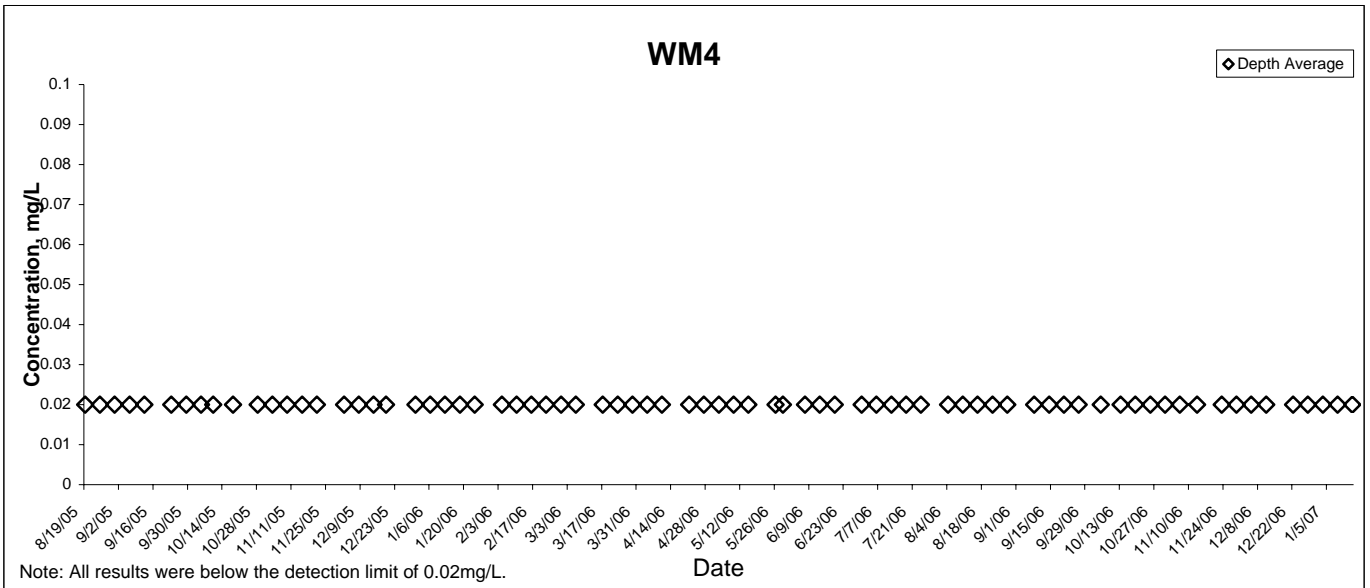
Total Nitrogen



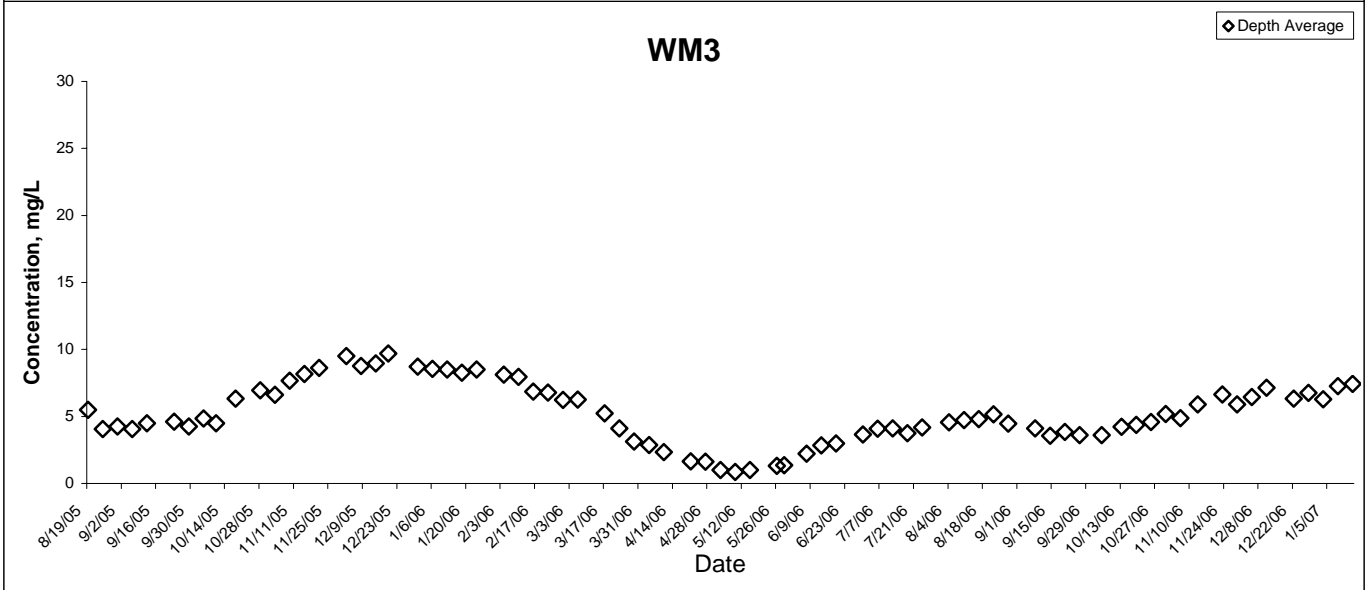
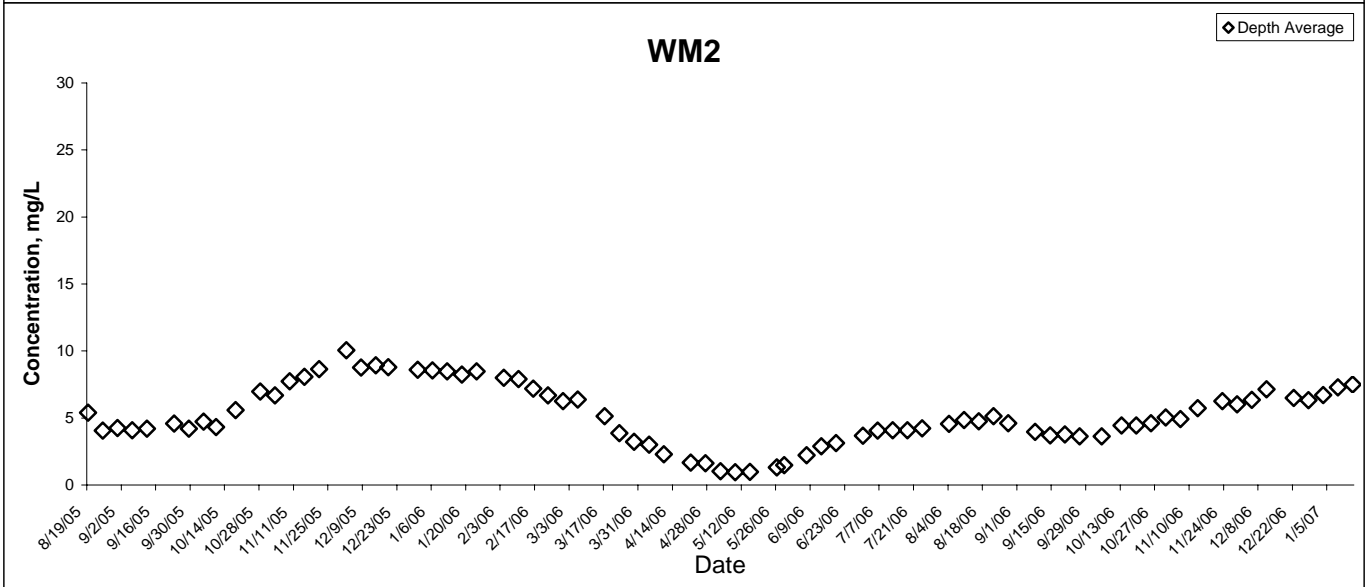
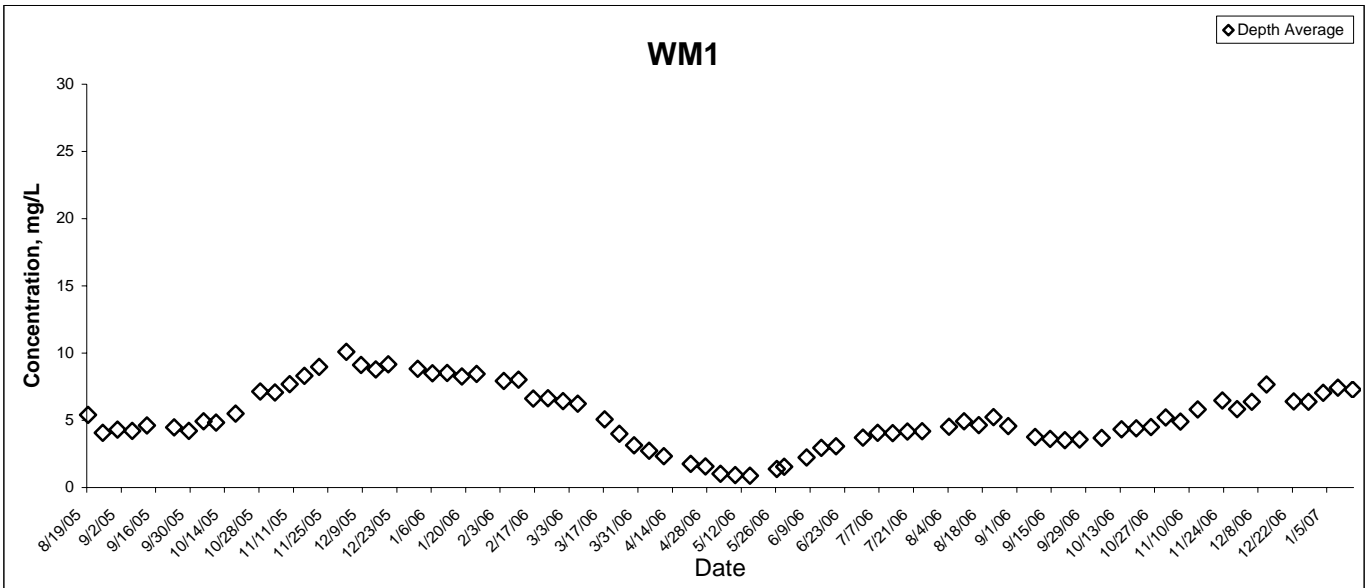
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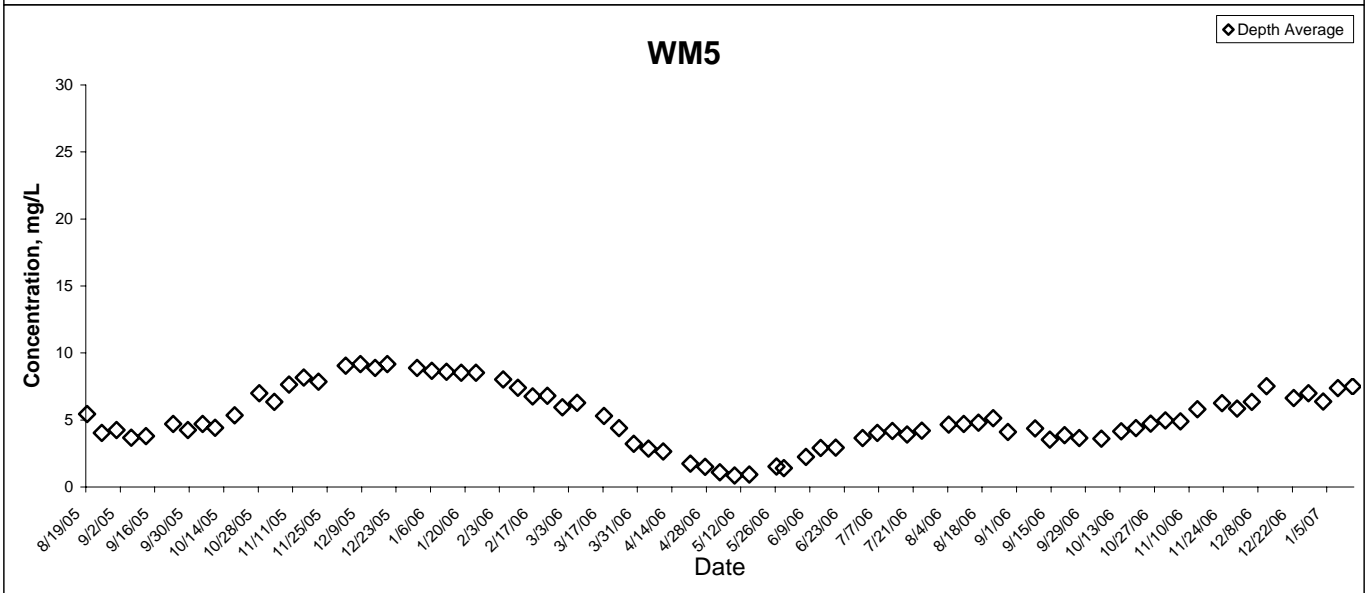
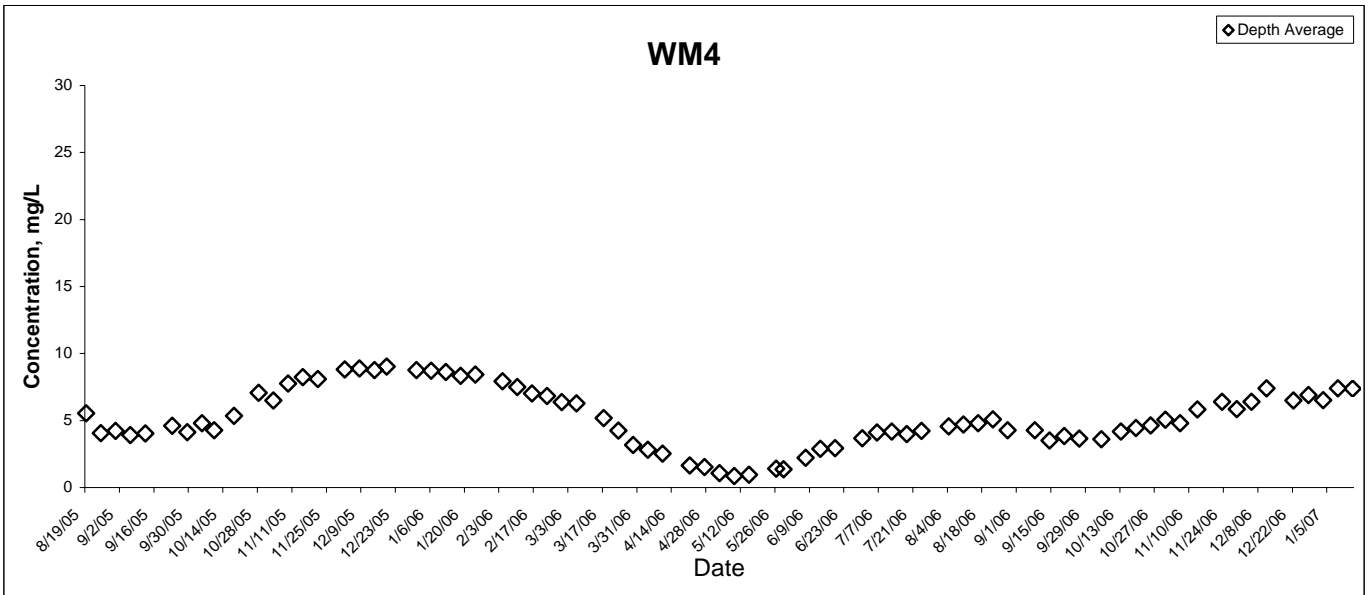
Total Phosphorous



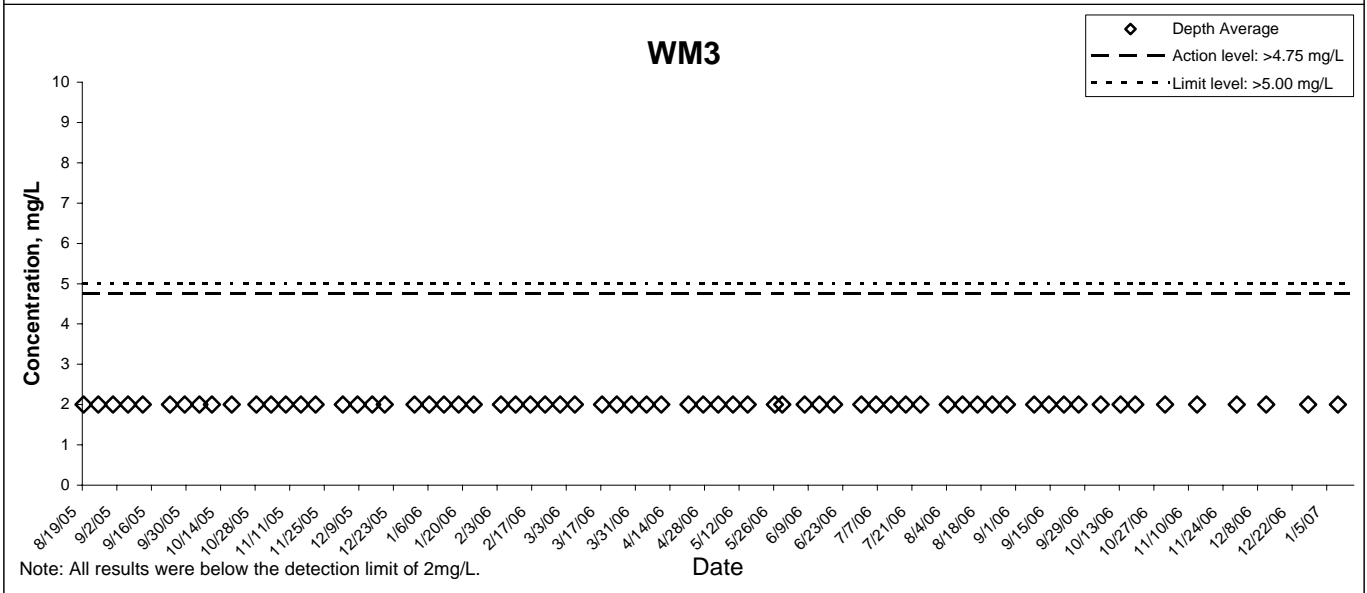
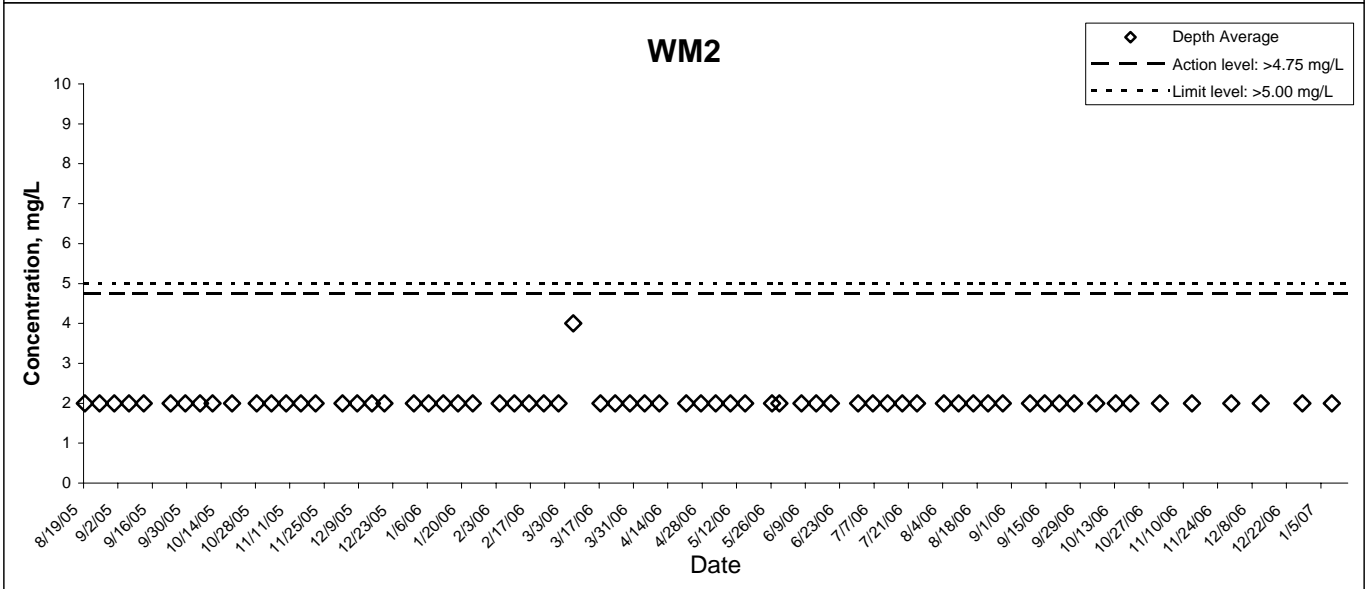
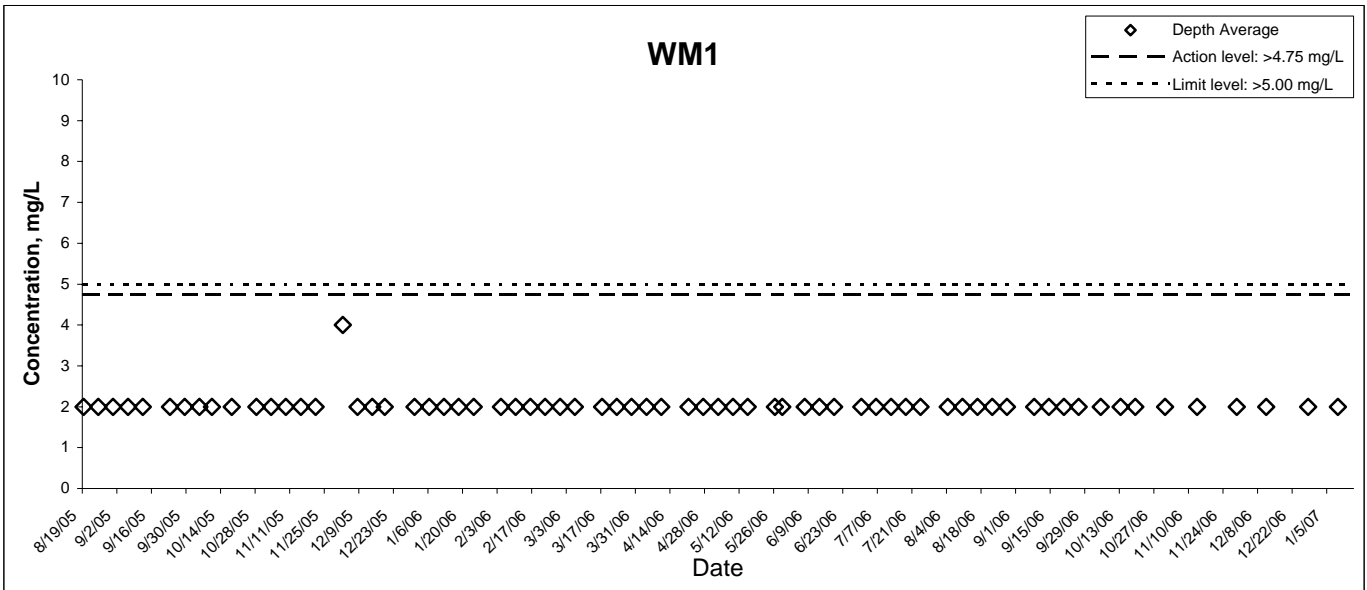
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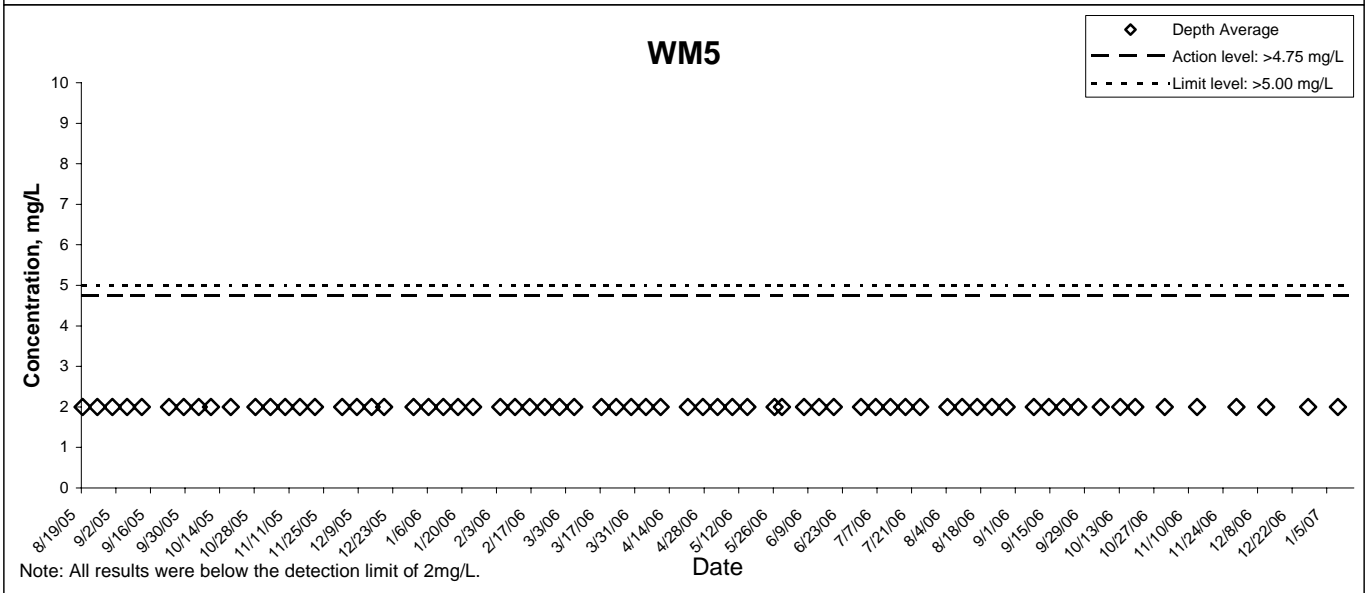
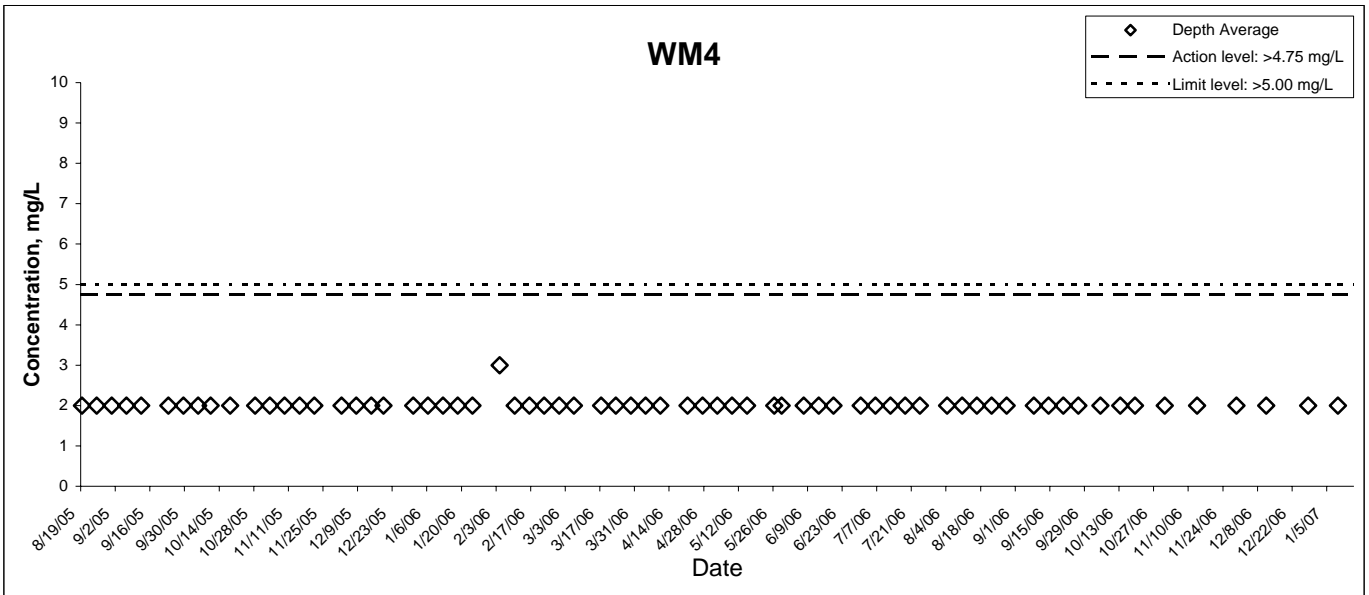
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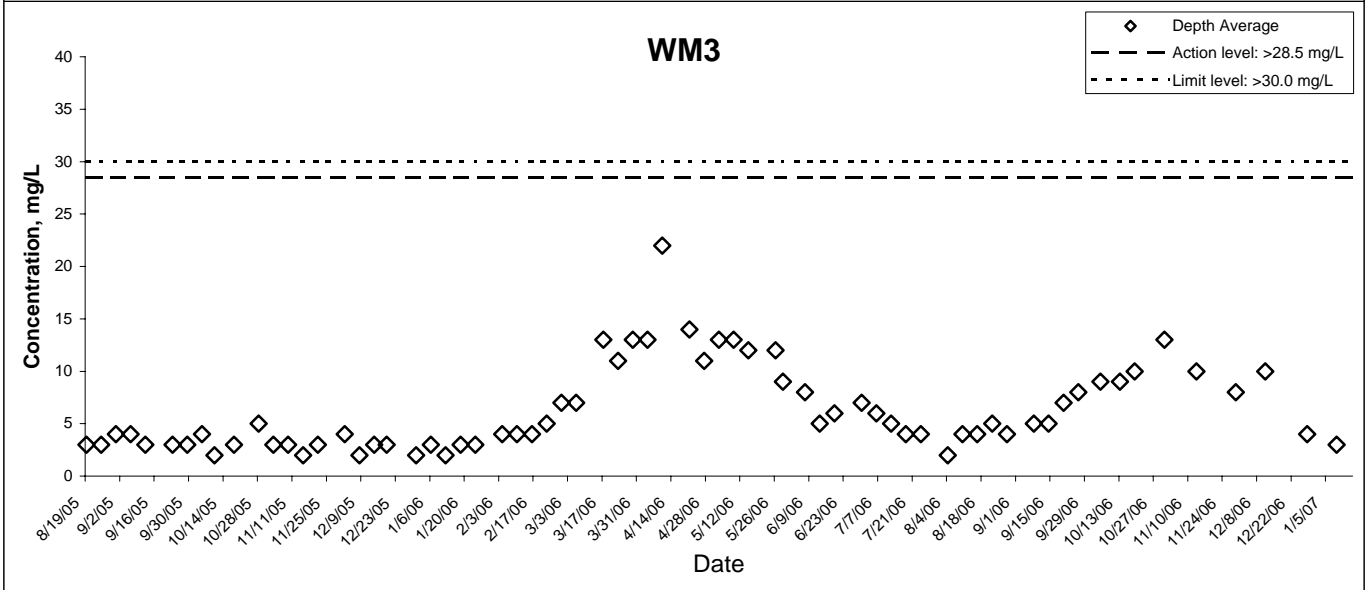
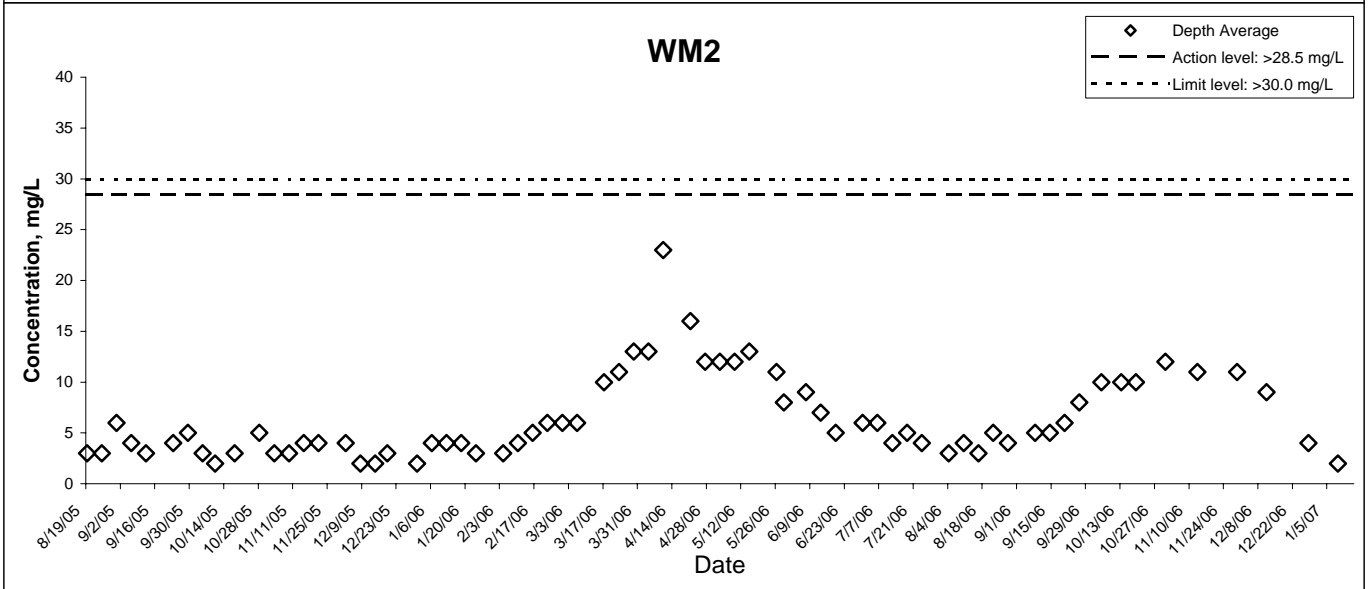
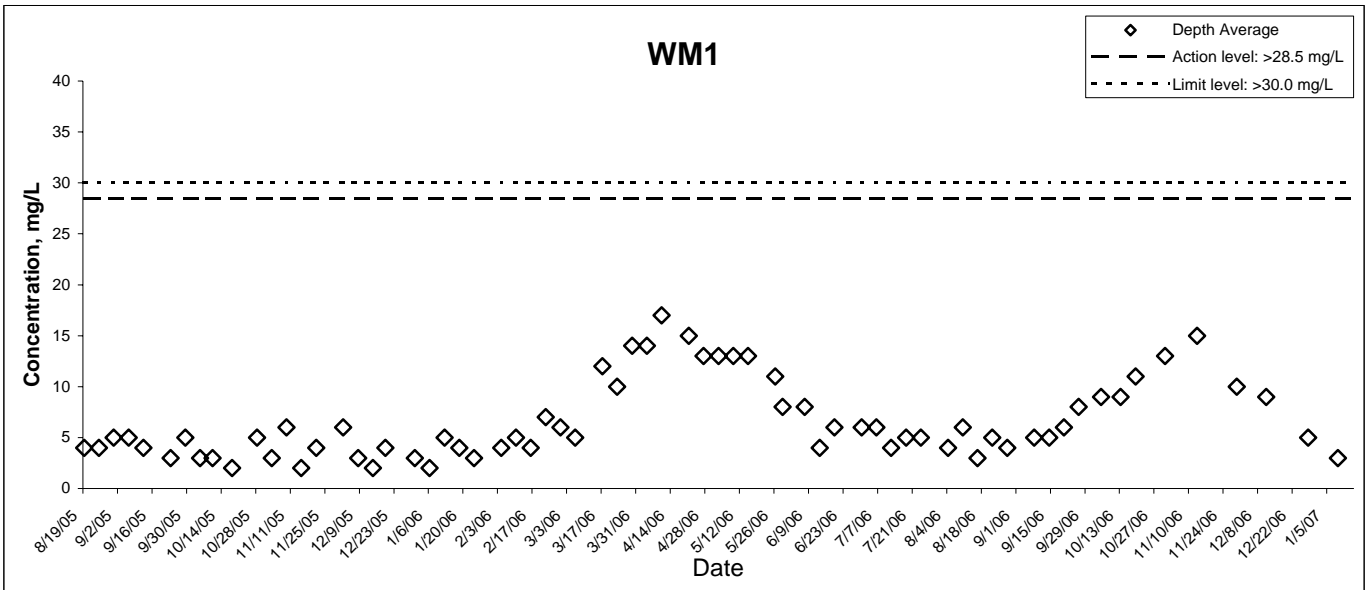
5-day BOD



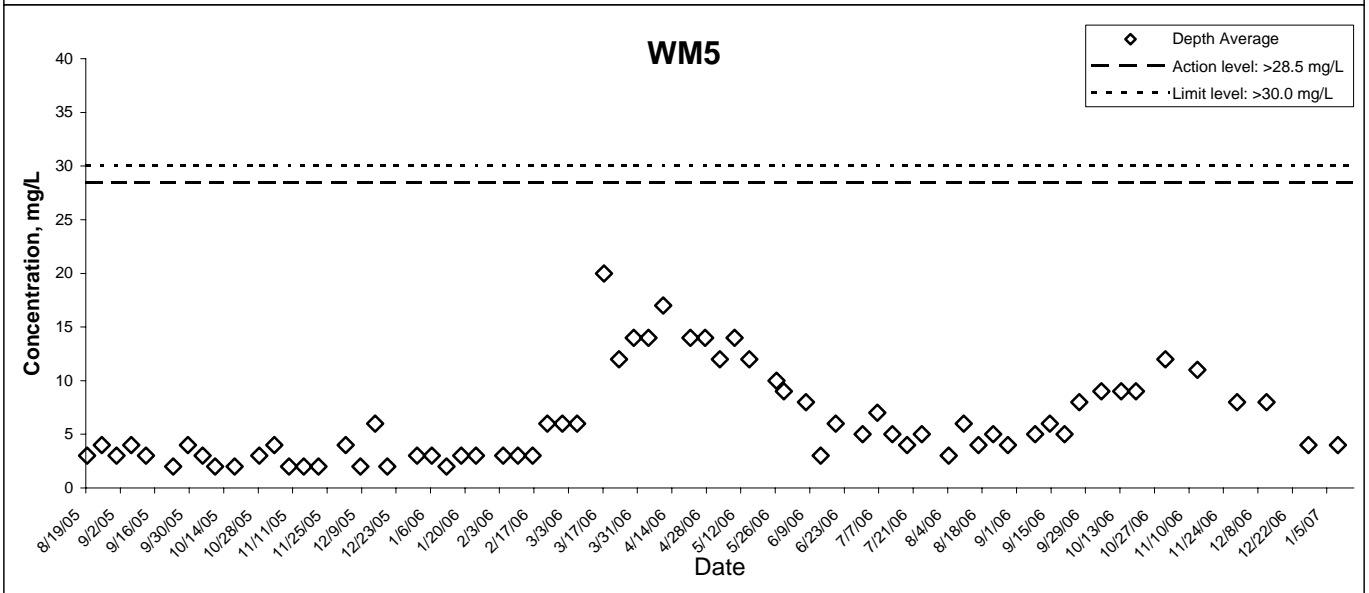
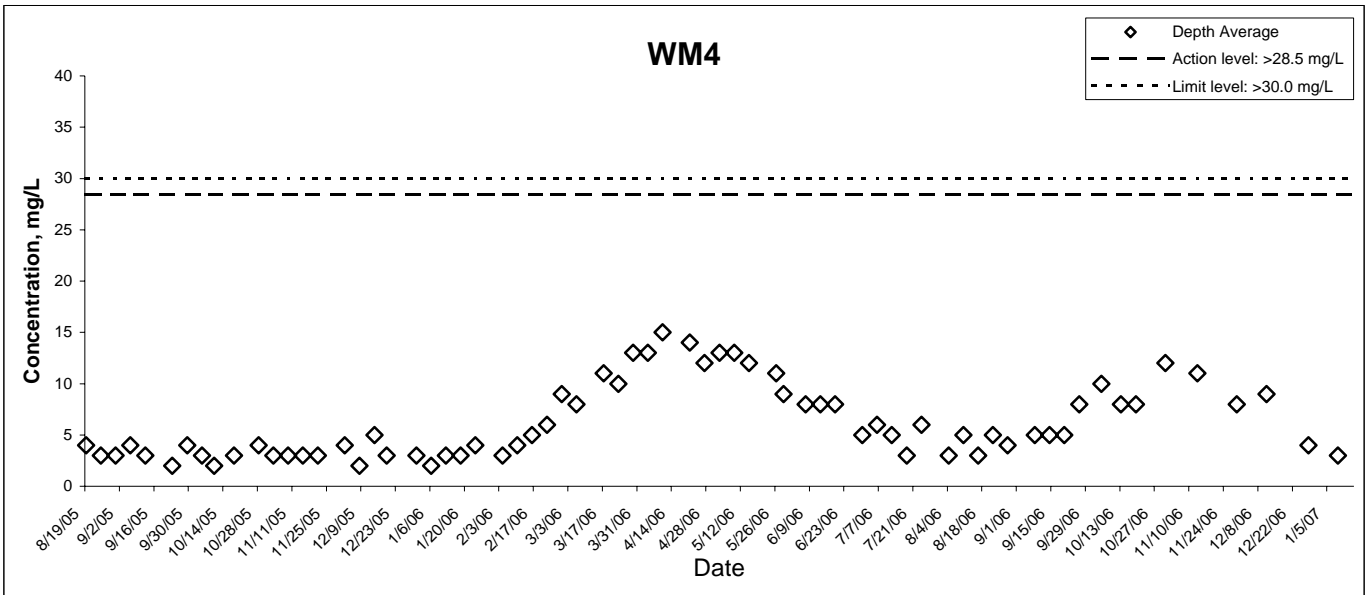
5-day BOD



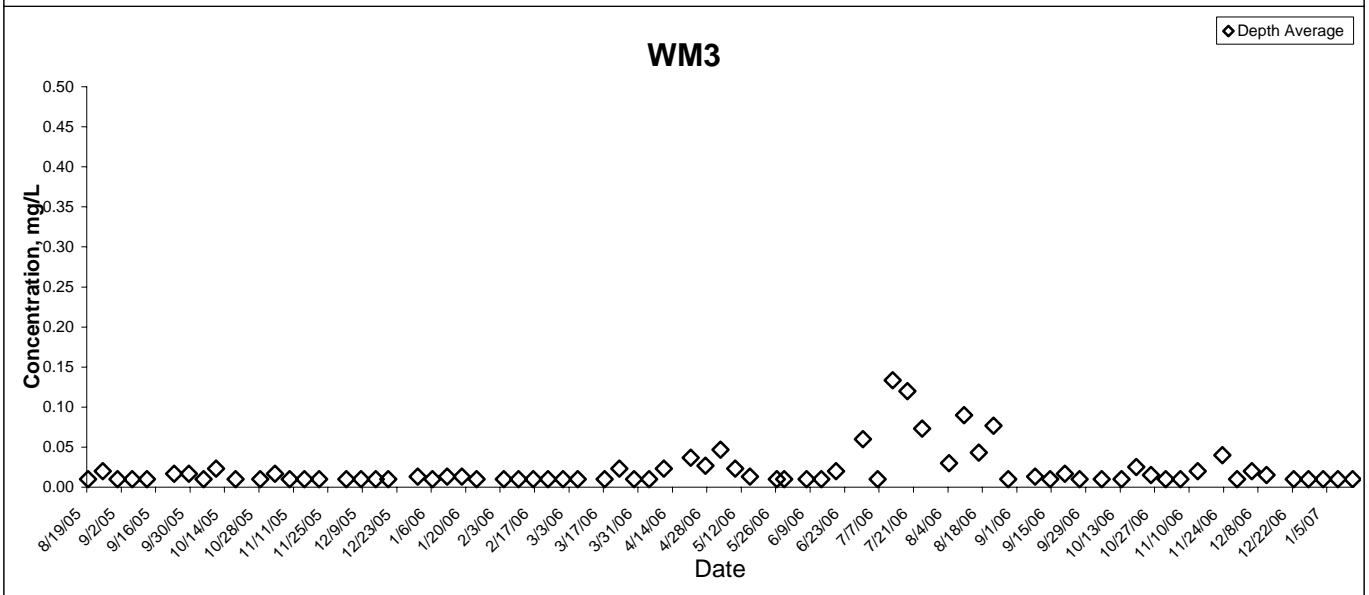
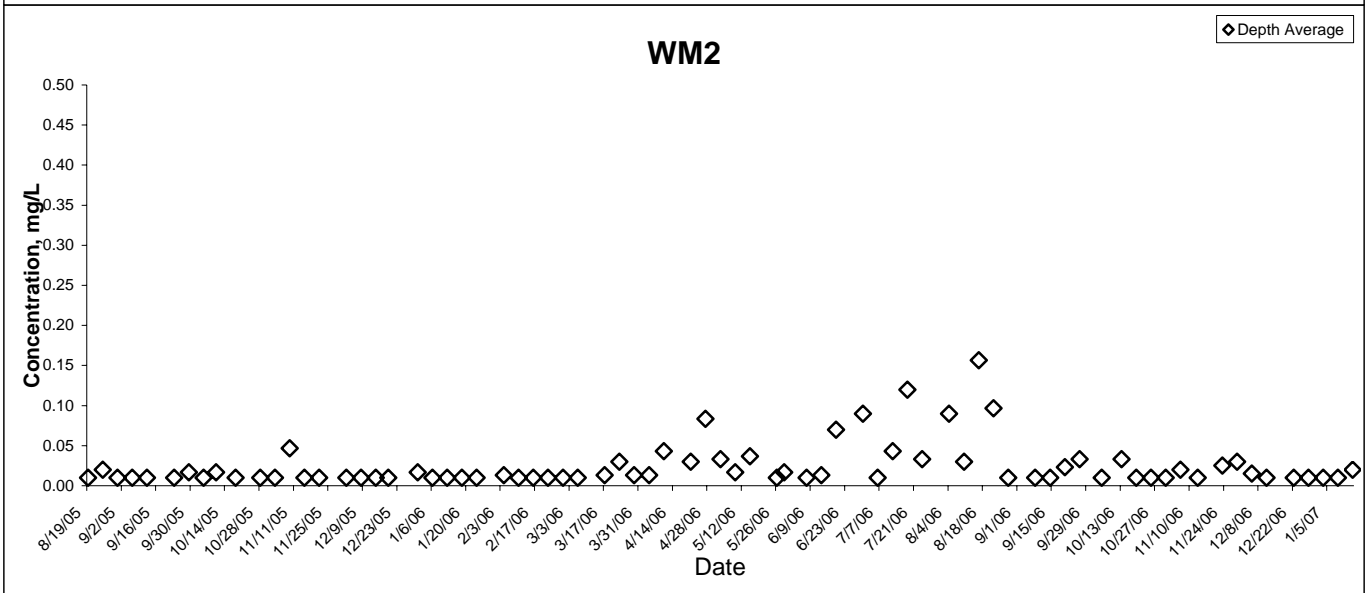
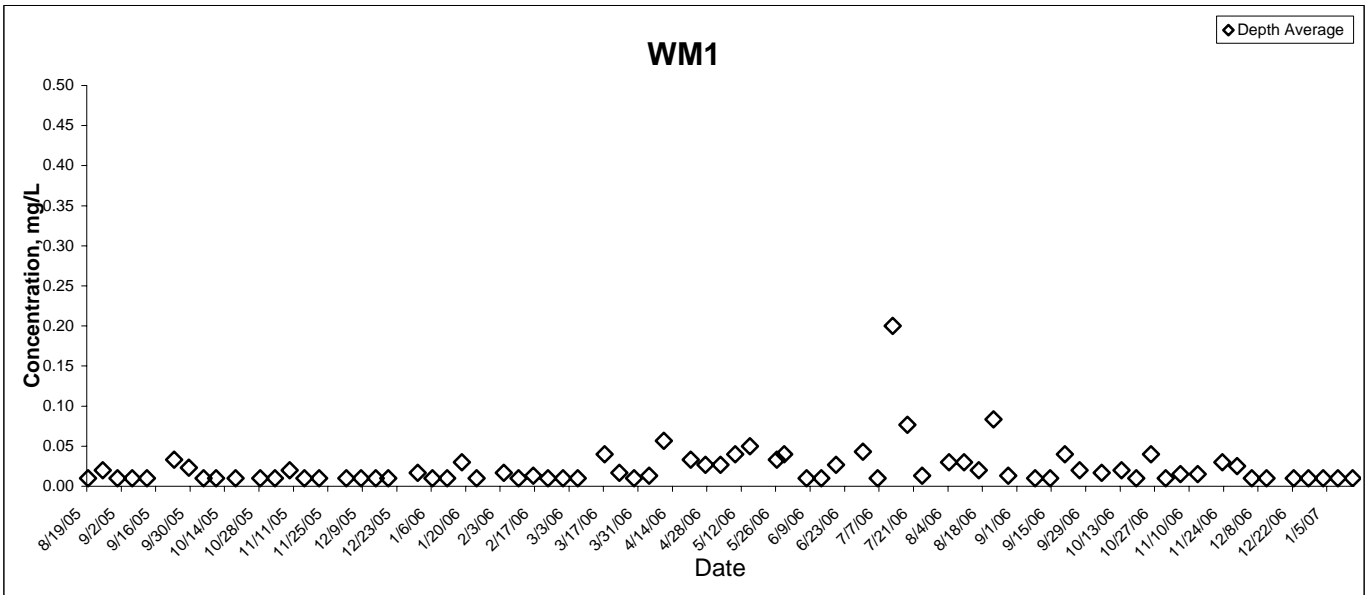
Chemical Oxygen Demand



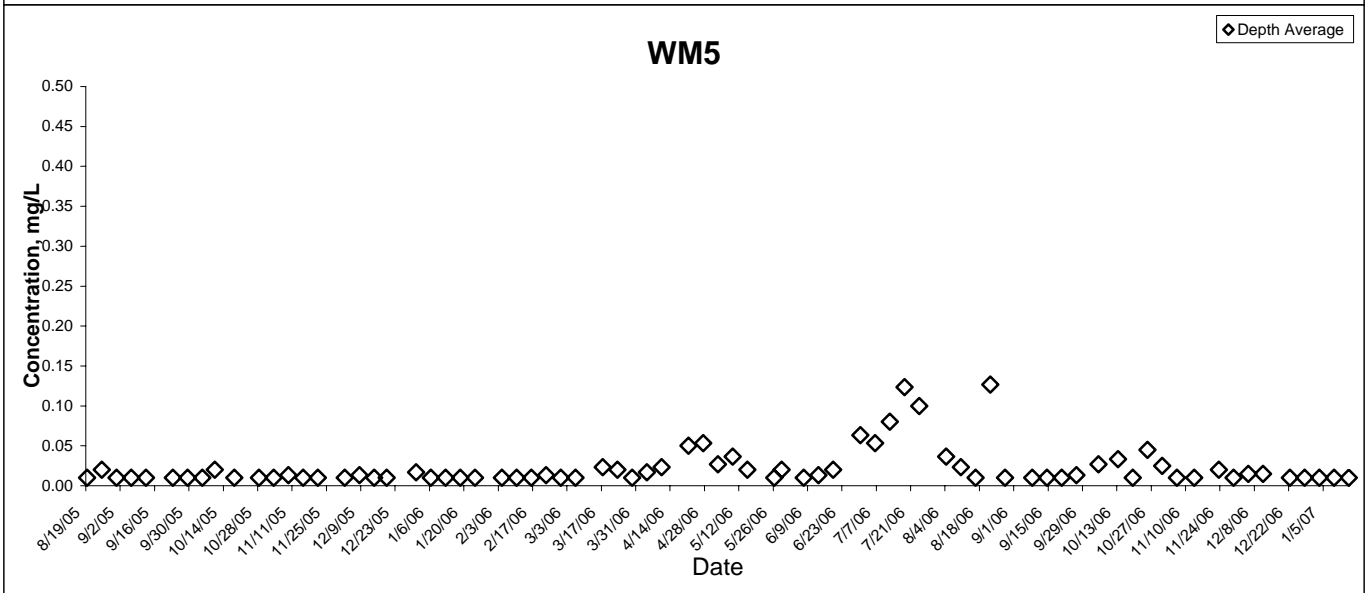
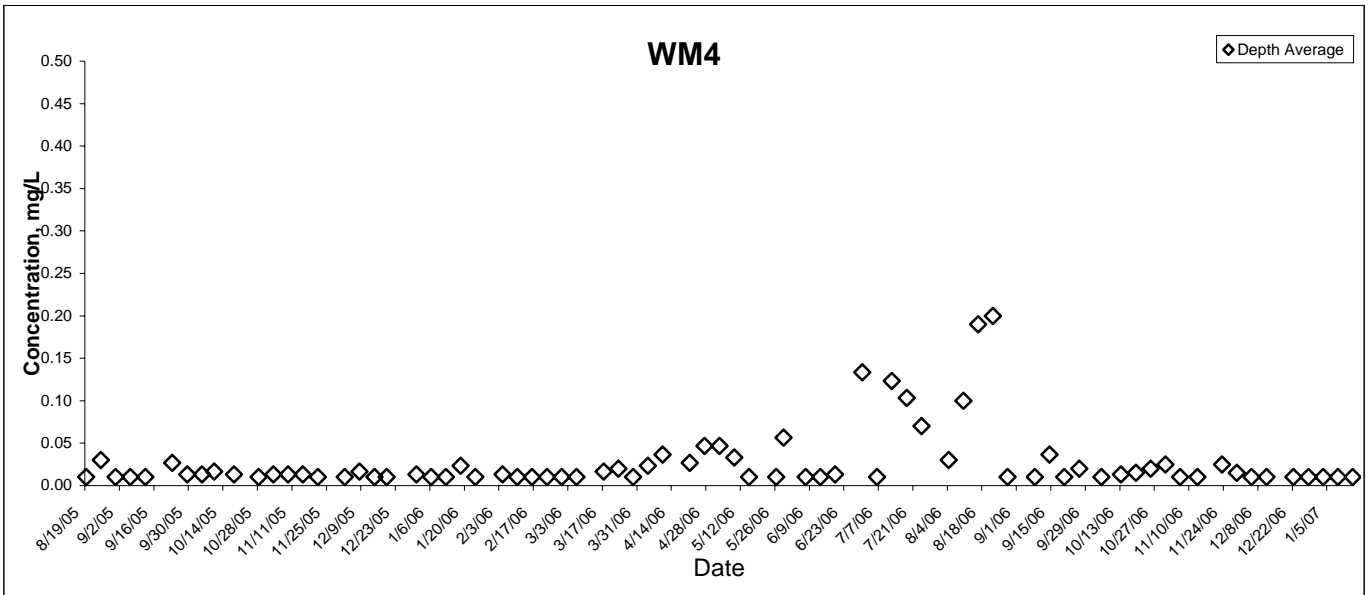
Chemical Oxygen Demand



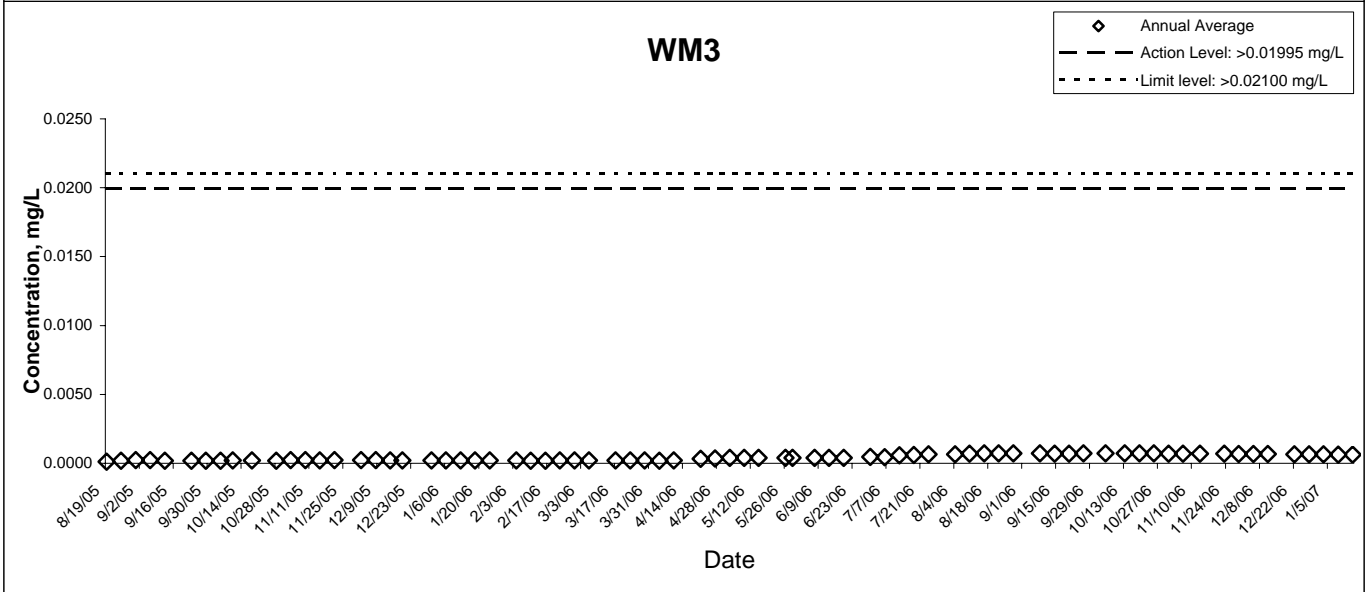
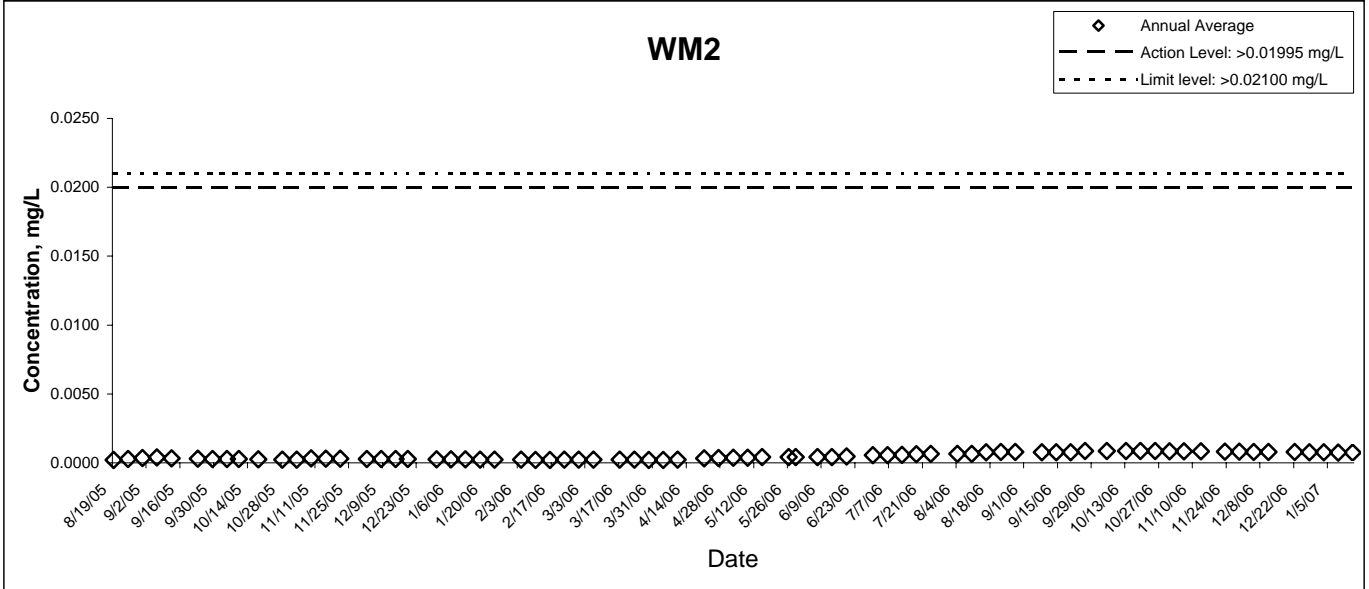
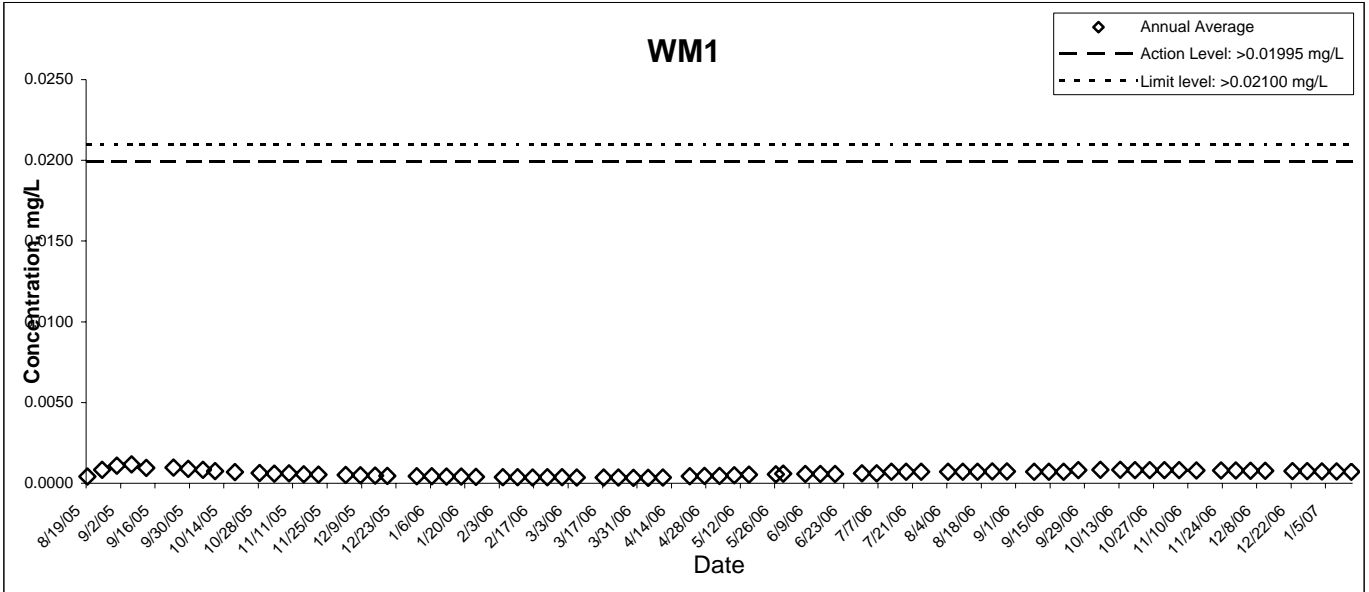
Ammonia Nitrogen



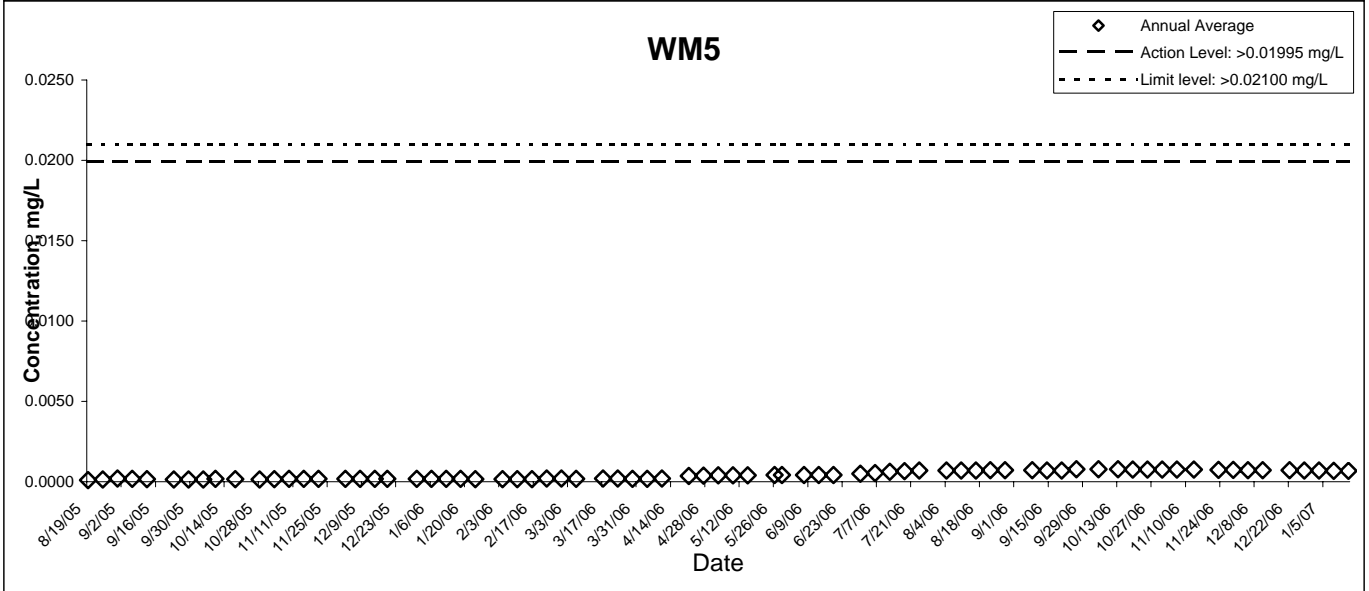
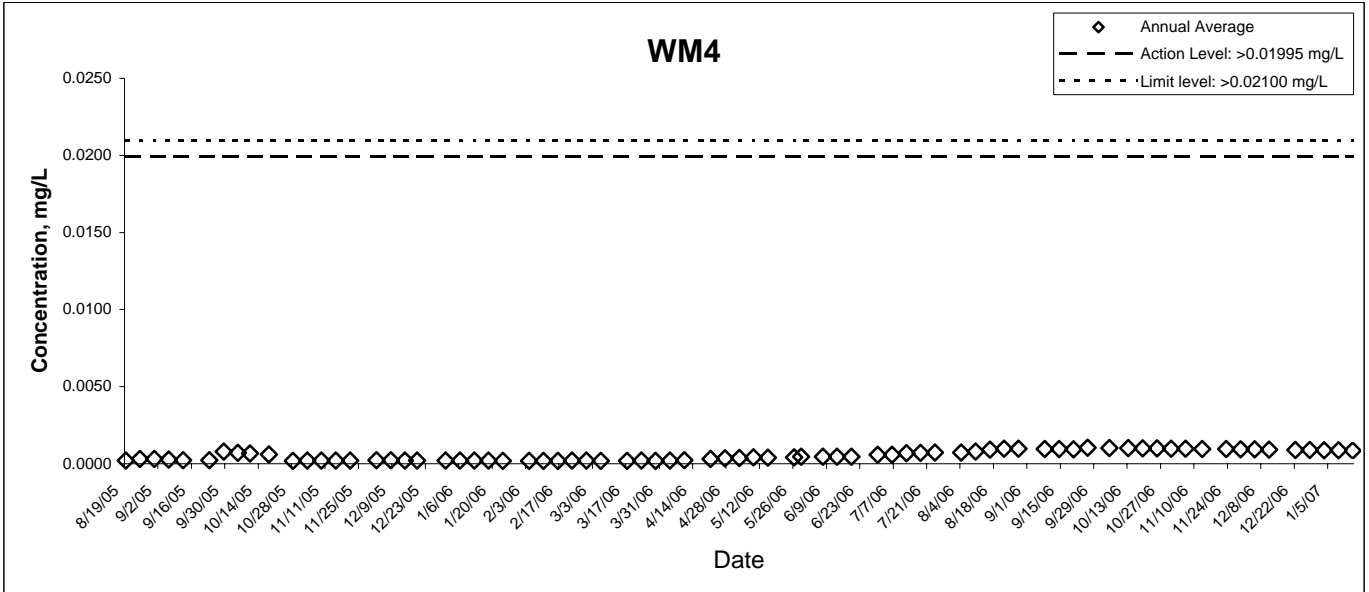
Ammonia Nitrogen



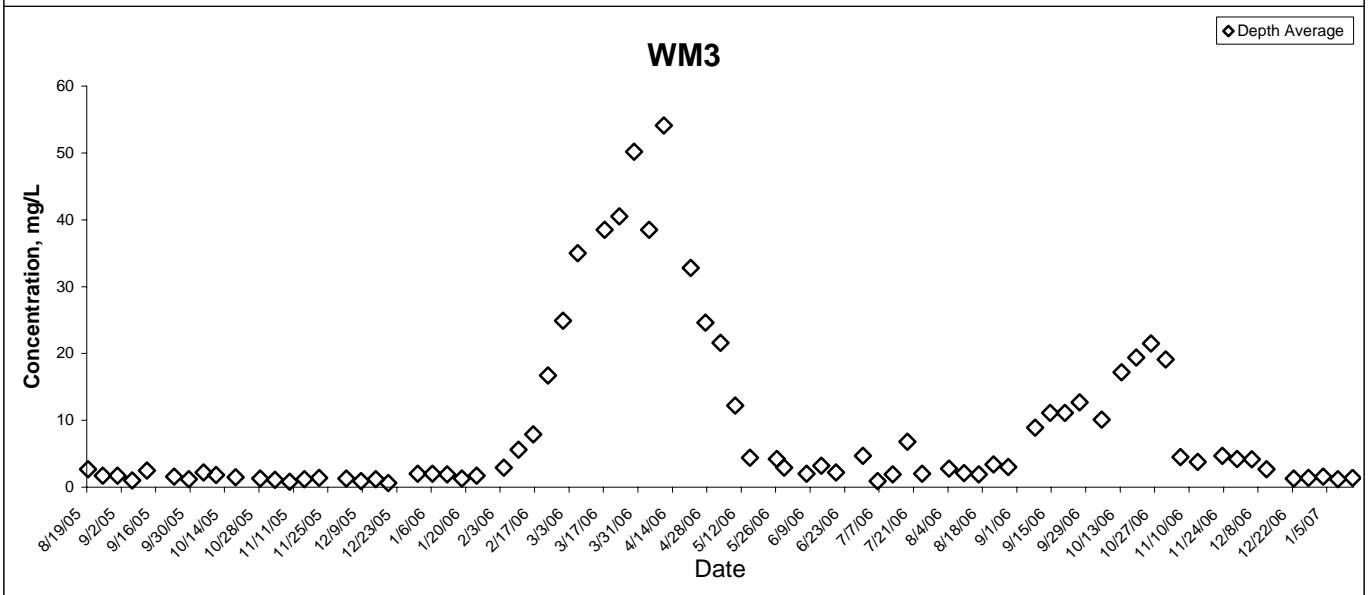
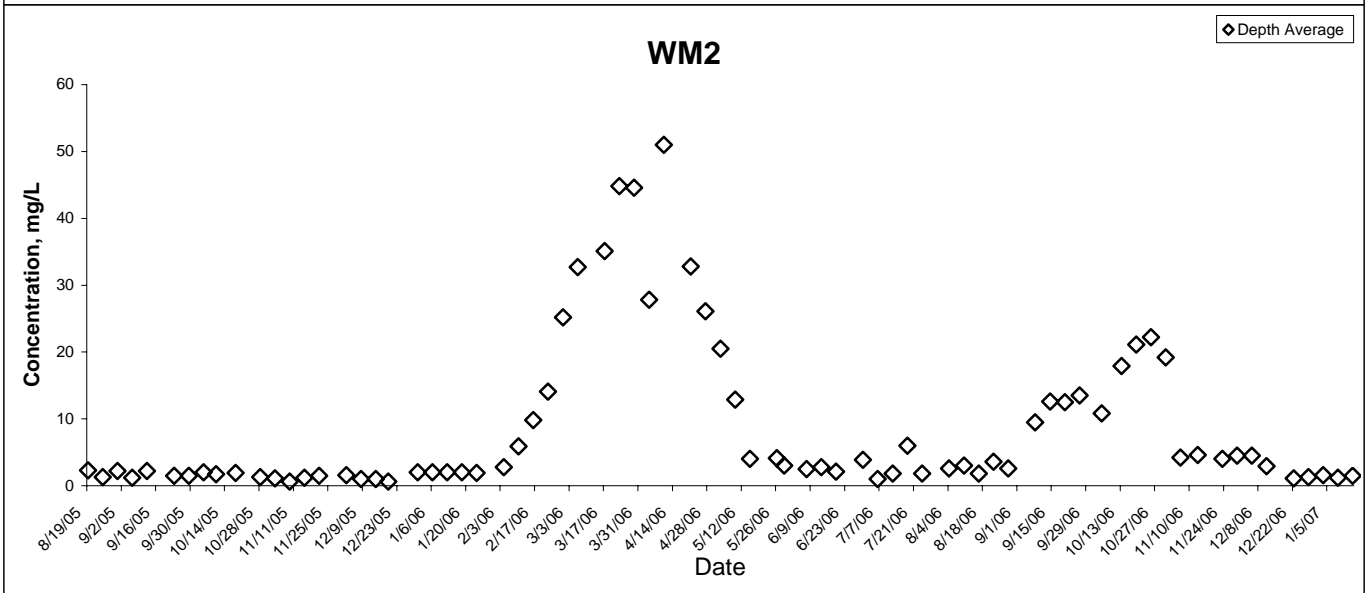
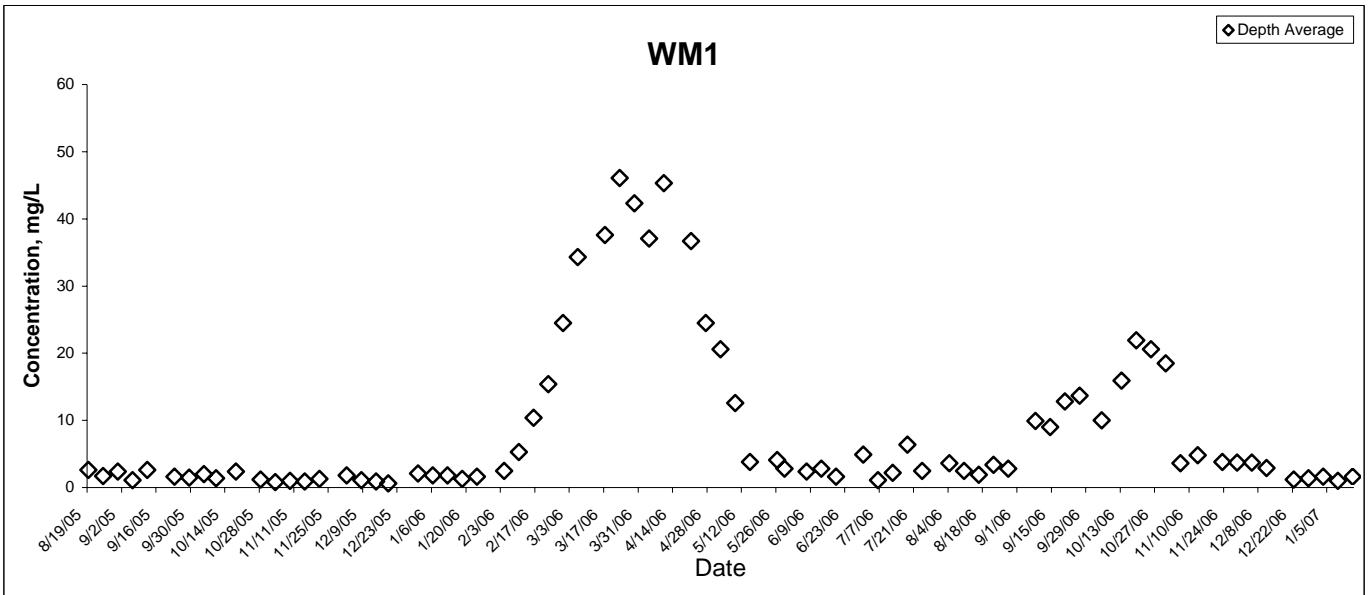
Unionised Nitrogen (Annual Average)



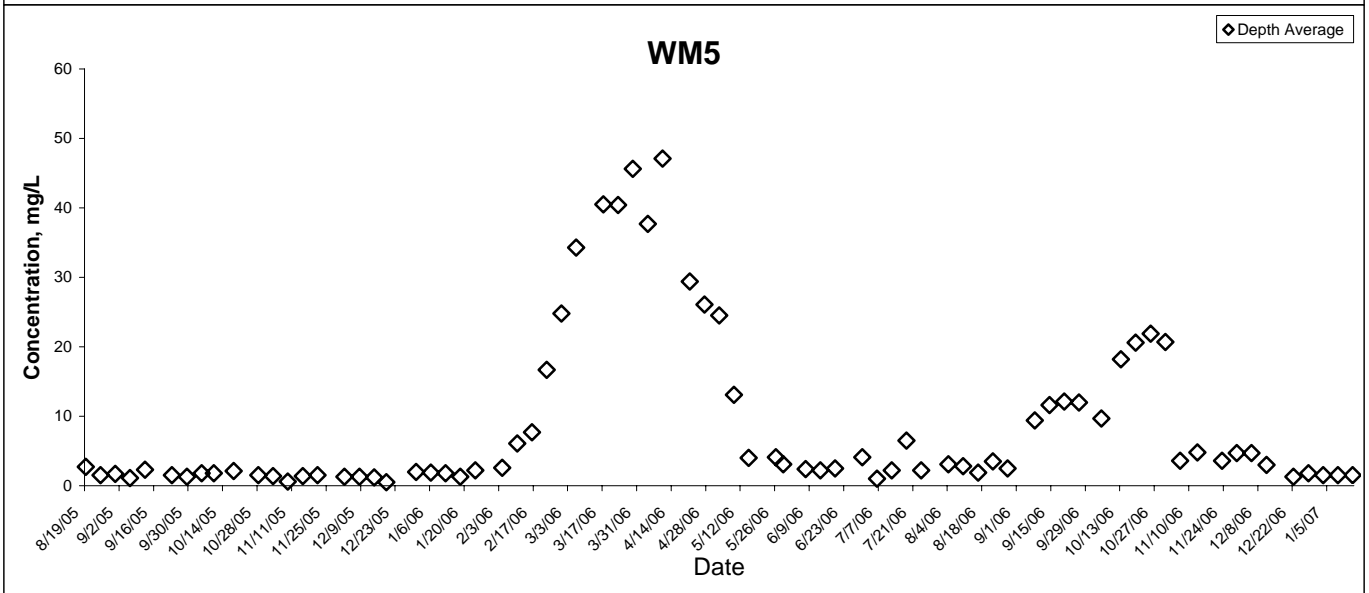
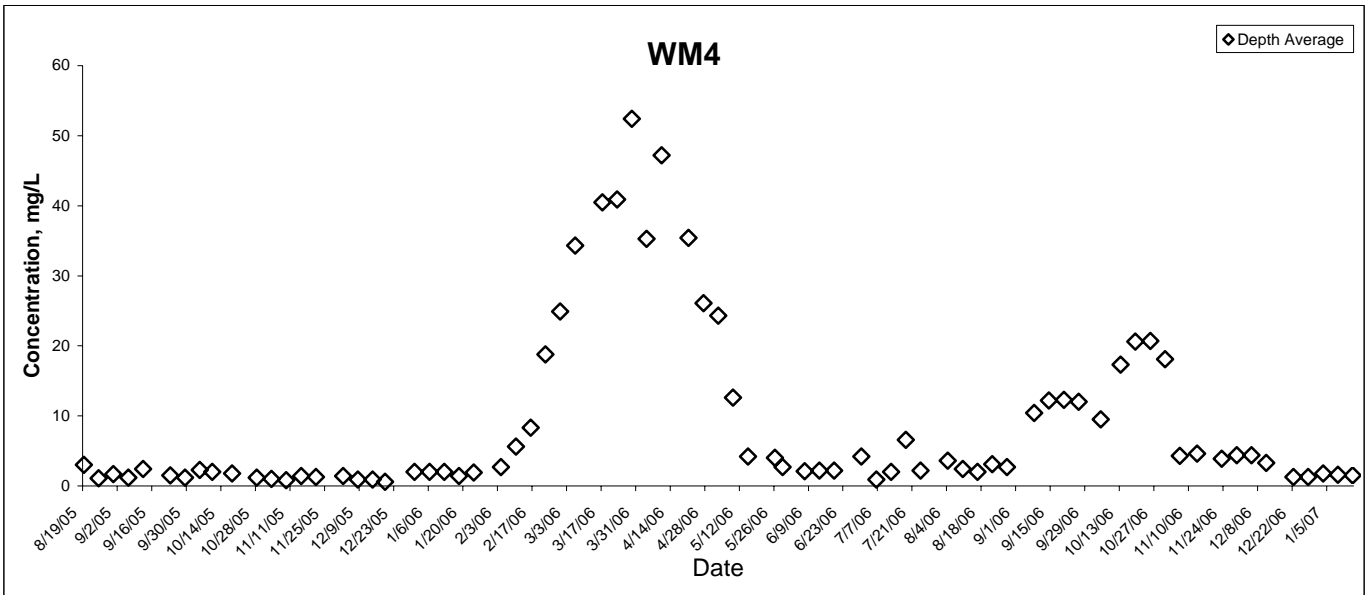
Unionised Nitrogen (Annual Average)



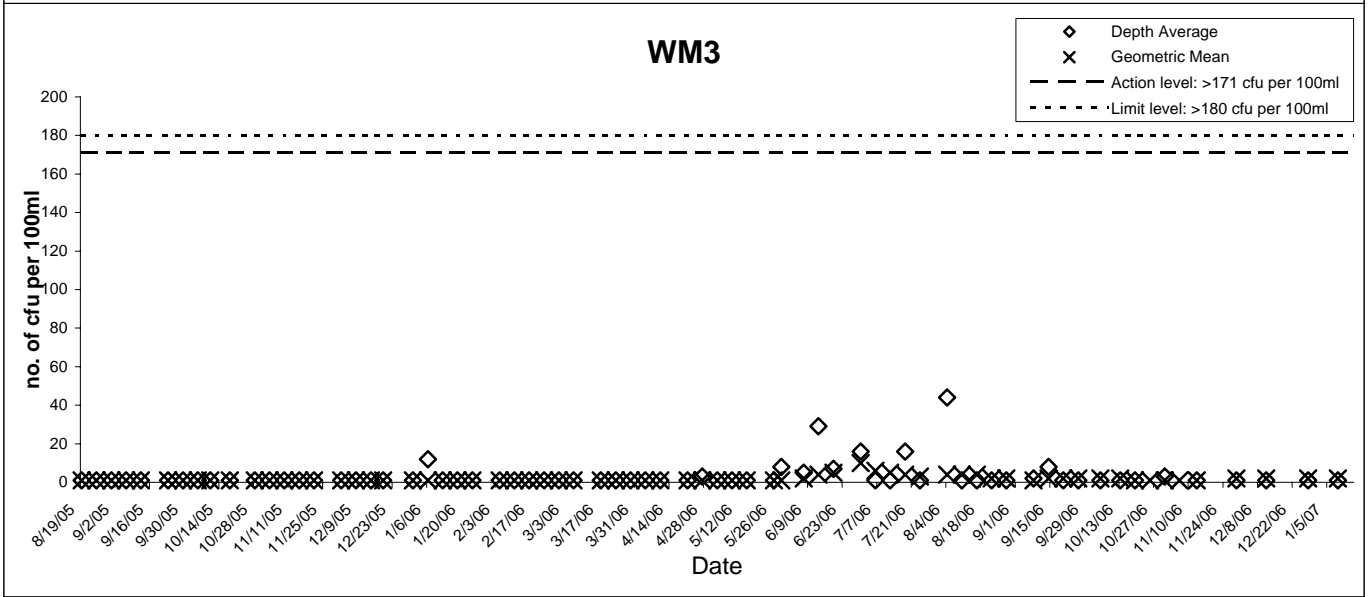
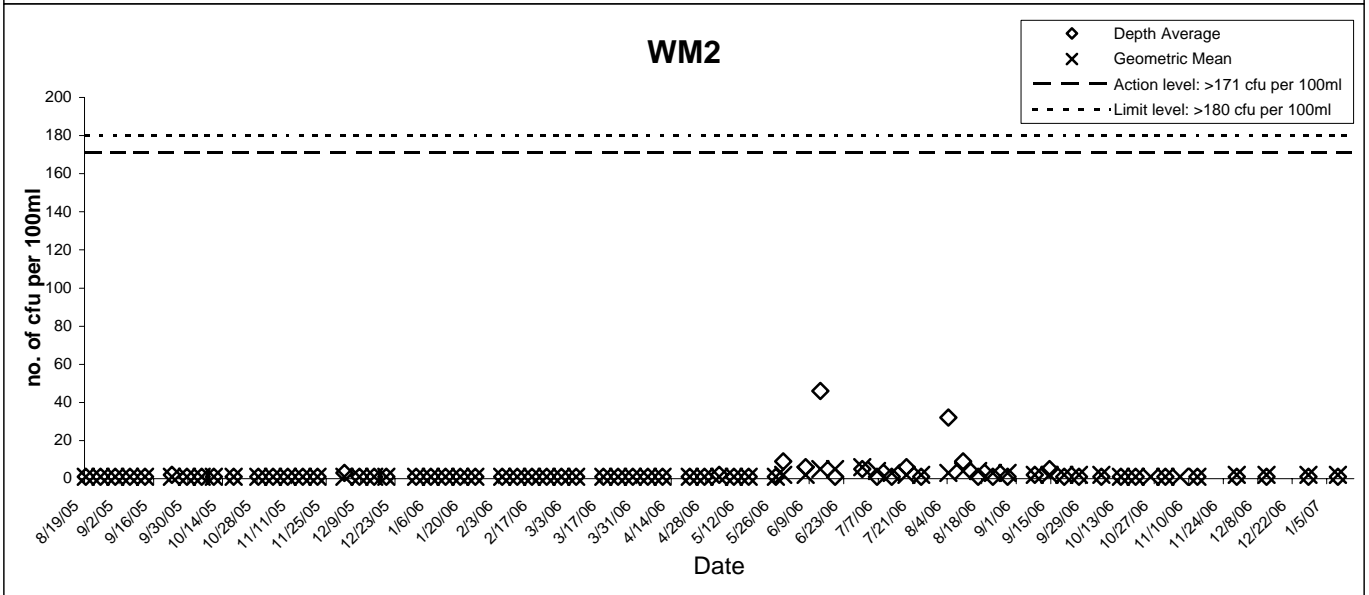
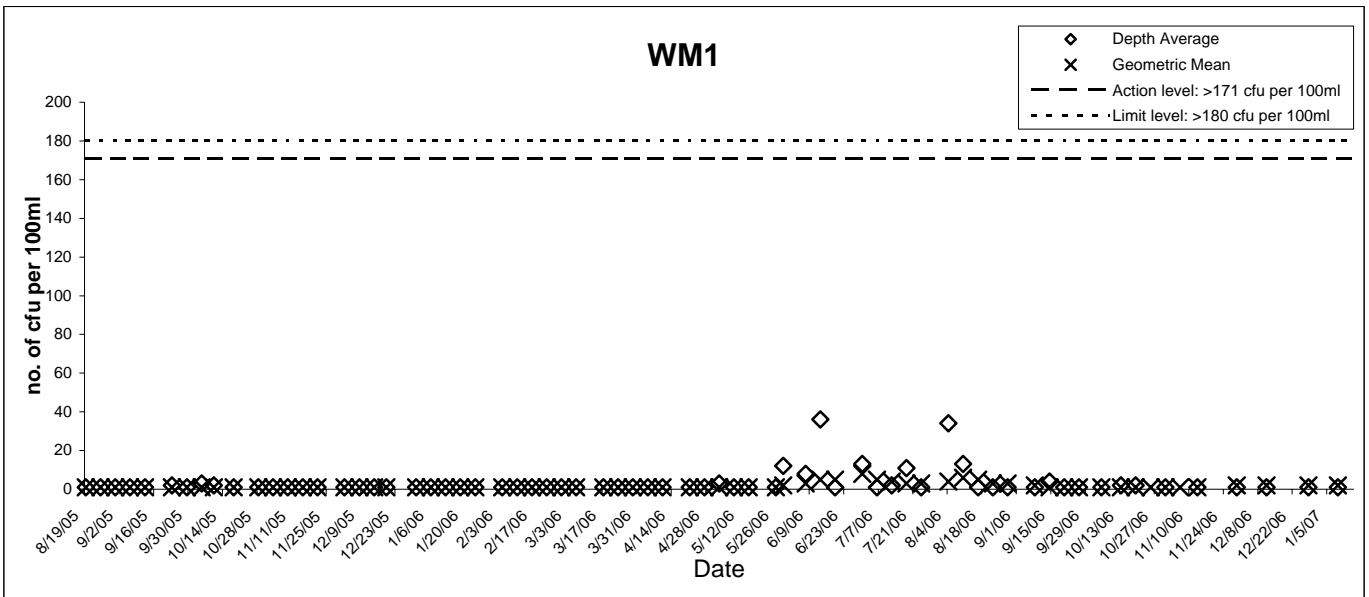
Chlorophyll-a



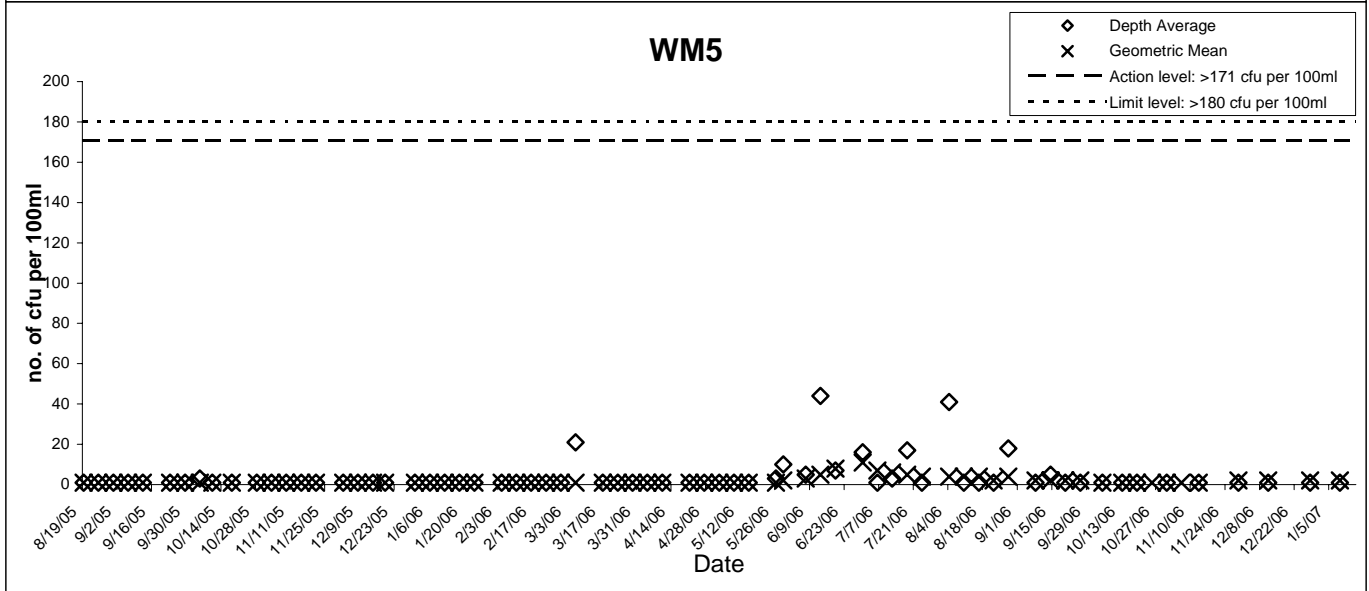
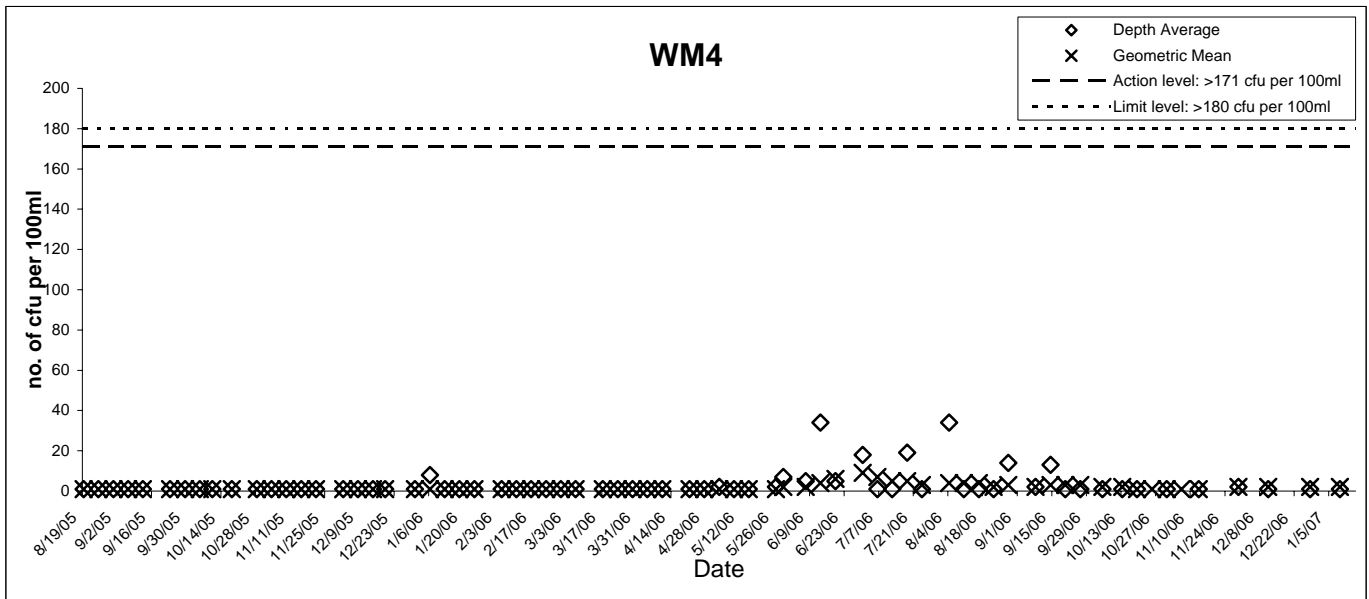
Chlorophyll-a



E.coli



E.coli



Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:36	Surface	1	16.6 16.6	16.6	6.56	6.45	87.4 88.0	87.7	1.6 1.7	1.7	1.7	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.7	16.5 16.5	16.5	6.34		86.7 86.9	86.8	1.6 1.6	1.6		7.5 7.5	7.5	7.5			93.0		<0.1		
28-Dec-06	Fine	Moderate	8:44	Surface	1	18.5 18.3	18.4	7.06	7.08	75.2 76.3	75.8	1.3 1.3	1.3	1.4	7.2 7.2	7.2	7.2	94.5	94.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.4 18.4	18.4	7.10		76.7 76.9	76.8	1.4 1.5	1.5		7.2 7.2	7.2	7.2			94.7		<0.1		
3-Jan-07	Fine	Moderate	8:43	Surface	1	18.8 18.8	18.8	5.35	5.11	58.7 58.2	58.5	2.4 2.4	2.4	2.5	7.5 7.5	7.5	7.5	94.5	94.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.86		52.0 52.4	52.2	2.4 2.5	2.5		7.5 7.5	7.5	7.5			94.7		<0.1		
9-Jan-07	Sunny	Calm	9:21	Surface	1	15.5 15.6	15.6	7.01	6.99	83.3 83.8	83.6	1.2 1.2	1.2	1.2	7.1 7.1	7.1	7.1	82.5	82.5	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	15.6 15.4	15.5	6.97		83.6 83.4	83.5	1.0 1.1	1.1		7.1 7.1	7.1	7.1			82.4		<0.1		
15-Jan-07	Cloudy	Calm	9:26	Surface	1	16.9 16.9	16.9	7.07	6.98	88.6 89.3	89.0	1.2 1.2	1.2	1.3	7.1 7.1	7.1	7.1	86.7	86.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	16.8 16.9	16.9	6.89		86.6 86.9	86.8	1.3 1.3	1.3		7.1 7.1	7.1	7.1			86.6		<0.1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:36	Surface	1	0.3	0.3	<0.02	<0.02	6.5	6.4	-	-	-	-	0.01	<0.01000	<0.00076	1.1	1.2	-	-	-
				Bottom	3.7	0.3		<0.02		6.3		-		-		<0.01000			1.2		-		
28-Dec-06	Fine	Moderate	8:44	Surface	1	0.2	0.2	<0.02	<0.02	6.4	6.4	<2	<2	5.0	5.0	<0.01000	<0.01000	<0.00075	1.4	1.4	<1	<1	<2
				Bottom	3.8	0.2		<0.02		6.4		<2		5.0		<0.01000			1.3		<1		
3-Jan-07	Fine	Moderate	8:43	Surface	1	0.3	0.3	<0.02	<0.02	7.1	7.1	-	-	-	-	<0.01000	<0.01000	<0.00074	1.5	1.6	-	-	-
				Bottom	3.8	0.3		<0.02		7.0		-		-		<0.01000			1.6		-		
9-Jan-07	Sunny	Calm	9:21	Surface	1	0.1	0.1	<0.02	<0.02	7.4	7.4	<2	<2	3.0	<3	<0.01000	<0.01000	<0.00073	0.7	1.0	<1	<1	<2
				Bottom	3.6	0.1		<0.02		7.4		<2		<2		<0.01000			1.2		<1		
15-Jan-07	Cloudy	Calm	9:26	Surface	1	0.3	0.3	<0.02	<0.02	7.3	7.3	-	-	-	-	<0.01000	<0.01000	<0.00072	1.5	1.6	-	-	-
				Bottom	3.6	0.2		<0.02		7.3		-		-		<0.01000			1.6		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:30	Surface	1	16.7 16.6	16.7	6.59	6.59	88.3 87.9	88.1	1.7 1.6	1.7	1.7	7.5 7.5	7.5	7.5	93.0	94.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.6	16.6 16.6	16.6	6.58		88.0 88.2	88.1	1.7 1.7	1.7		7.5 7.5	7.5	7.5	94.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	9:03	Surface	1	17.8 18.0	17.9	7.13	7.11	77.1 78.2	77.7	1.5 1.6	1.6	1.7	7.1 7.1	7.1	7.2	94.9	94.8	<0.1	<0.1	2.0	<2	<2.00
				Bottom	3.7	17.9 18.0	18.0	7.09		75.6 74.3	75.0	1.7 1.7	1.7		7.2 7.2	7.2	7.2	94.7		<0.1		<2		
3-Jan-07	Fine	Moderate	9:01	Surface	1	18.8 18.8	18.8	4.87	4.87	52.1 52.5	52.3	2.6 2.6	2.6	2.6	7.4 7.5	7.5	7.5	94.9	94.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.86		52.0 52.1	52.1	2.6 2.6	2.6		7.5 7.5	7.5	7.5	94.7		<0.1		<2		
9-Jan-07	Sunny	Calm	9:10	Surface	1	15.8 15.7	15.8	5.35	5.11	83.1 83.0	83.1	1.2 1.1	1.2	1.2	7.1 7.1	7.1	7.1	82.1	82.4	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	15.6 15.6	15.6	4.86		82.5 82.1	82.3	1.1 1.1	1.1		7.1 7.1	7.1	7.1	82.6		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:15	Surface	1	16.8 16.8	16.8	6.95	6.94	87.7 87.4	87.6	1.3 1.3	1.3	1.3	7.1 7.1	7.1	7.1	87.1	86.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	16.7 16.7	16.7	6.93		87.2 87.1	87.2	1.3 1.3	1.3		7.1 7.1	7.1	7.1	86.5		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																		
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)			
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM	
22-Dec-06	Sunny	Calm	9:30	Surface	1	0.3	0.3	<0.02	<0.02	6.5	6.5	-	-	-	-	<0.01000	<0.01000	<0.00078	1.0	1.1	-	-	-	
				Bottom	3.6	0.2		<0.02		6.5		-		-		<0.01000			1.1		-			
28-Dec-06	Fine	Moderate	9:03	Surface	1	0.2	0.2	<0.02	<0.02	6.2	6.3	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00077	1.2	1.3	<1	<1	<2	
				Bottom	3.7	0.2		<0.02		6.5		<2		4.0		<0.01000			1.4		<1			
3-Jan-07	Fine	Moderate	9:01	Surface	1	0.3	0.3	<0.02	<0.02	6.8	6.7	-	-	-	-	<0.01000	<0.01000	<0.00076	1.4	1.6	-	-	-	
				Bottom	3.8	0.3		<0.02		6.6		-		-		<0.01000			1.8		-			
9-Jan-07	Sunny	Calm	9:10	Surface	1	0.1	0.1	<0.02	<0.02	7.1	7.3	<2	<2	<2	<2	<0.01000	<0.01000	<0.00075	1.3	1.2	<1	<1	<2	
				Bottom	3.7	0.1		<0.02		7.5		<2		2.0		<0.01000			1.1		<1			
15-Jan-07	Cloudy	Calm	9:15	Surface	1	0.1	0.1	<0.02	<0.02	7.5	7.5	-	-	-	-	0.02	0.020	<0.00074	1.4	1.5	-	-	-	
				Bottom	3.8	0.1		<0.02		7.5		-		-		0.02			1.5		-			

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
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 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:44	Surface	1	16.5 16.6	16.6	6.31	6.29	86.6 86.5	86.6	1.7 1.6	1.7	1.7	7.6 7.5	7.6	7.6	94.0	94.0	<0.1	<0.1	3.0	3.0	<2.00
				Bottom	3.8	16.6 16.6	16.6	6.27		86.1 85.8	86.0	1.6 1.6	1.6		7.5 7.5	7.5	7.5	93.0		<0.1		3.0		
28-Dec-06	Fine	Moderate	9:21	Surface	1	18.1 18.0	18.1	7.22	7.21	79.2 79.9	79.6	1.4 1.5	1.5	1.6	7.2 7.3	7.3	7.3	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	18.2 18.1	18.2	7.19		78.3 78.5	78.4	1.5 1.6	1.6		7.3 7.2	7.3	7.3	94.8		<0.1		<2		
3-Jan-07	Fine	Moderate	9:17	Surface	1	18.8 18.8	18.8	4.89	4.91	52.4 52.6	52.5	2.5 2.5	2.5	2.5	7.5 7.5	7.5	7.5	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.8	18.8 18.8	18.8	4.93		52.8 53.0	52.9	2.5 2.5	2.5		7.5 7.5	7.5	7.5	94.8		<0.1		<2		
9-Jan-07	Sunny	Calm	9:31	Surface	1	15.8 15.8	15.8	4.87	4.87	84.4 84.6	84.5	1.1 1.2	1.2	1.2	7.1 7.1	7.1	7.1	82.5	82.6	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.4	15.7 15.6	15.7	4.86		84.0 83.8	83.9	1.2 1.2	1.2		7.1 7.1	7.1	7.1	82.7		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:36	Surface	1	16.9 16.8	16.9	6.87	6.83	86.6 86.5	86.6	1.4 1.3	1.4	1.4	7.2 7.2	7.2	7.2	86.9	86.9	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	16.8 16.8	16.8	6.79		86.0 85.8	85.9	1.3 1.3	1.3		7.2 7.2	7.2	7.2	86.8		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
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 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:44	Surface	1	0.8	0.6	<0.02	<0.02	6.1	6.3	-	-	-	-	<0.01000	<0.01000	<0.00066	1.4	1.3	-	-	-
				Bottom	3.8	0.3		<0.02		6.6		-		-		<0.01000			1.2		-		
28-Dec-06	Fine	Moderate	9:21	Surface	1	0.2	0.3	<0.02	<0.02	6.7	6.8	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00065	1.3	1.4	<1	<1	<2
				Bottom	3.7	0.3		<0.02		6.8		<2		4.0		<0.01000			1.4		<1		
3-Jan-07	Fine	Moderate	9:17	Surface	1	0.3	0.3	<0.02	<0.02	6.1	6.3	-	-	-	-	<0.01000	<0.01000	<0.00064	1.7	1.6	-	-	-
				Bottom	3.8	0.3		<0.02		6.4		-		-		<0.01000			1.5		-		
9-Jan-07	Sunny	Calm	9:31	Surface	1	0.1	<0.1	<0.02	<0.02	7.1	7.3	<2	<2	<2	<3	<0.01000	<0.01000	<0.00063	1.3	1.2	<1	<1	<2
				Bottom	3.4	<0.1		<0.02		7.4		<2		3.0		<0.01000			1.1		<1		
15-Jan-07	Cloudy	Calm	9:36	Surface	1	0.2	0.2	<0.02	<0.02	7.4	7.4	-	-	-	-	<0.01000	<0.01000	<0.00063	1.3	1.4	-	-	-
				Bottom	3.7	0.2		<0.02		7.4		-		-		<0.01000			1.4		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:51	Surface	1	16.5 16.6	16.6	6.63	6.62	89.0 88.3	88.7	1.6 1.6	1.6	1.6	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	2.0	2.0	<2.00
				Bottom	3.8	16.4 16.4	16.4	6.60		88.0 88.2	88.1	1.6 1.6	1.6		7.5 7.5	7.5	7.5	92.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	9:37	Surface	1	17.7 17.8	17.8	7.27	7.22	80.0 79.4	79.7	1.8 1.9	1.9	2.0	7.2 7.1	7.2	7.2	94.8	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	18.0 18.1	18.1	7.16		76.2 76.7	76.5	1.9 2.0	2.0		7.1 7.1	7.1	7.1	94.6		<0.1		<2		
3-Jan-07	Fine	Moderate	9:32	Surface	1	18.8 18.8	18.8	4.97	5.05	53.0 52.6	52.8	2.5 2.6	2.6	2.6	7.5 7.5	7.5	7.5	94.8	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	4	18.8 18.8	18.8	5.13		55.2 55.0	55.1	2.5 2.5	2.5		7.5 7.5	7.5	7.5	94.6		<0.1		<2		
9-Jan-07	Sunny	Calm	9:42	Surface	1	15.9 15.8	15.9	4.89	4.91	85.5 84.9	85.2	1.2 1.3	1.3	1.3	7.1 7.1	7.1	7.1	83.2	83.2	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	15.8 15.8	15.8	4.93		85.0 84.6	84.8	1.2 1.2	1.2		7.1 7.1	7.1	7.1	83.2		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:45	Surface	1	16.9 16.9	16.9	6.71	6.72	84.7 85.1	84.9	1.2 1.2	1.2	1.3	7.1 7.1	7.1	7.1	87.0	86.8	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.7	16.8 16.7	16.8	6.72		85.3 84.9	85.1	1.3 1.3	1.3		7.1 7.1	7.1	7.1	86.5		<0.1		<2		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																	
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM
22-Dec-06	Sunny	Calm	9:51	Surface	1	0.2	0.3	<0.02	<0.02	6.3	6.5	-	-	-	-	<0.01000	<0.01000	<0.00090	1.2	1.3	-	-	-
				Bottom	3.8	0.3		<0.02		6.7		-		-		<0.01000			1.4		-		
28-Dec-06	Fine	Moderate	9:37	Surface	1	0.3	0.3	<0.02	<0.02	6.7	6.9	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00089	1.4	1.3	<1	<1	<2
				Bottom	3.6	0.2		<0.02		7.1		<2		4.0		<0.01000			1.2		<1		
3-Jan-07	Fine	Moderate	9:32	Surface	1	0.3	0.3	<0.02	<0.02	6.6	6.5	-	-	-	-	<0.01000	<0.01000	<0.00088	1.8	1.8	-	-	-
				Bottom	4	0.3		<0.02		6.4		-		-		<0.01000			1.7		-		
9-Jan-07	Sunny	Calm	9:42	Surface	1	0.1	<0.1	<0.02	<0.02	7.5	7.4	<2	<2	3.0	3.0	<0.01000	<0.01000	<0.00087	1.7	1.6	<1	<1	<2
				Bottom	3.6	<0.1		<0.02		7.3		<2		3.0		<0.01000			1.4		<1		
15-Jan-07	Cloudy	Calm	9:45	Surface	1	0.3	0.4	<0.02	<0.02	7.3	7.4	-	-	-	-	<0.01000	<0.01000	<0.00086	1.3	1.5	-	-	-
				Bottom	3.7	0.4		<0.02		7.5		-		-		<0.01000			1.6		-		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Water Quality Monitoring Results at WM5

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring														Laboratory Monitoring				
						Temperature (°C)		DO Concentration (mg/L)		DO Saturation (%)		Turbidity (NTU)			pH			Conductivity (mS/cm)		Salinity (g/L)		Suspended Solid (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value
22-Dec-06	Sunny	Calm	9:59	Surface	1	16.7 16.7	16.7	6.40	6.37	87.6 86.9	87.3	1.7 1.7	1.7	1.8	7.5 7.5	7.5	7.5	93.0	93.0	<0.1	<0.1	2.0	2.0	<2.00
				Bottom	3.7	16.6 16.5	16.6	6.34		86.6 86.5	86.6	1.7 1.8	1.8		7.5 7.5	7.5	7.5	93.0		<0.1		2.0		
28-Dec-06	Fine	Moderate	9:48	Surface	1	18.0 18.1	18.1	7.01	6.99	81.2 80.6	80.9	1.9 1.9	1.9	1.9	7.2 7.2	7.2	7.2	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.5	18.0 17.9	18.0	6.97		79.4 80.1	79.8	1.8 1.9	1.9		7.2 7.2	7.2	7.2	94.8		<0.1		<2		
3-Jan-07	Fine	Moderate	9:46	Surface	1	18.8 18.8	18.8	5.23	5.18	56.4 56.2	56.3	2.5 2.5	2.5	2.5	7.5 7.5	7.5	7.5	94.5	94.7	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.9	18.8 18.8	18.8	5.13		54.9 55.3	55.1	2.4 2.5	2.5		7.5 7.5	7.5	7.5	94.8		<0.1		<2		
9-Jan-07	Sunny	Calm	9:52	Surface	1	16.1 16.1	16.1	4.97	5.05	82.2 82.1	82.2	1.1 1.1	1.1	1.1	7.1 7.1	7.1	7.1	83.5	83.5	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.5	16.0 16.1	16.1	5.13		81.7 81.3	81.5	1.1 1.1	1.1		7.1 7.1	7.1	7.1	83.5		<0.1		<2		
15-Jan-07	Cloudy	Calm	9:54	Surface	1	16.8 16.9	16.9	6.87	6.86	86.7 86.4	86.6	1.3 1.3	1.3	1.3	7.2 7.2	7.2	7.2	86.5	86.5	<0.1	<0.1	<2	<2	<2.00
				Bottom	3.6	16.9 16.9	16.9	6.85		86.6 86.3	86.5	1.2 1.3	1.3		7.1 7.1	7.1	7.1	86.4		<0.1		<2		

Note:
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 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

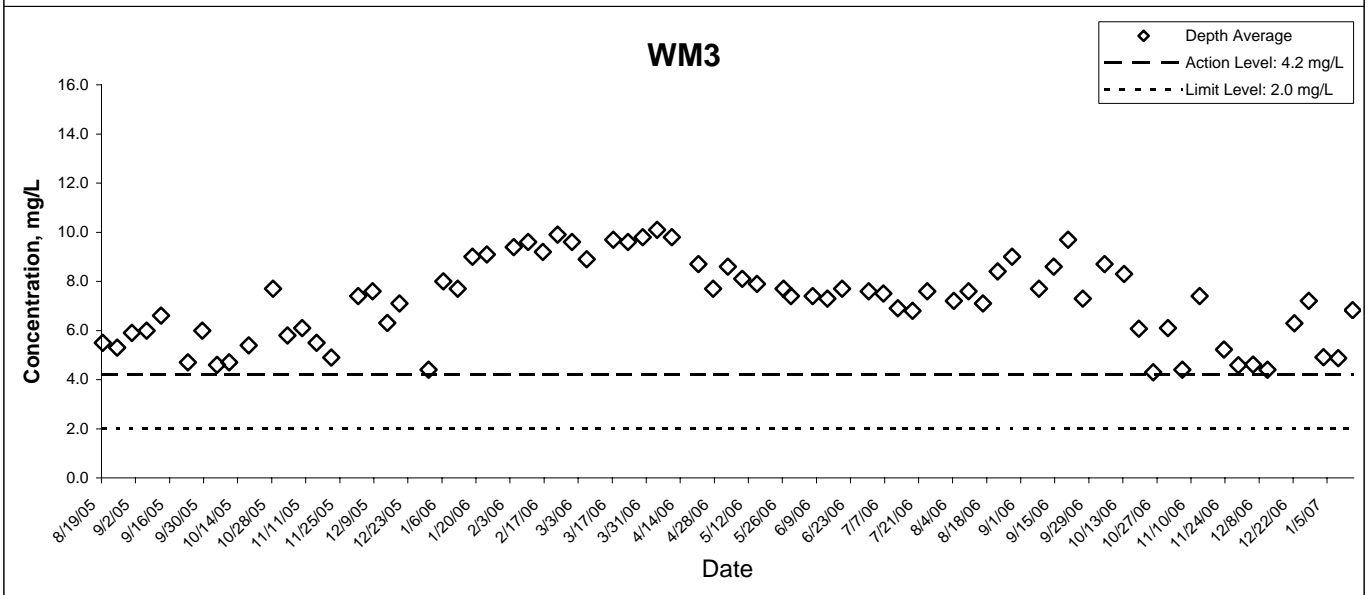
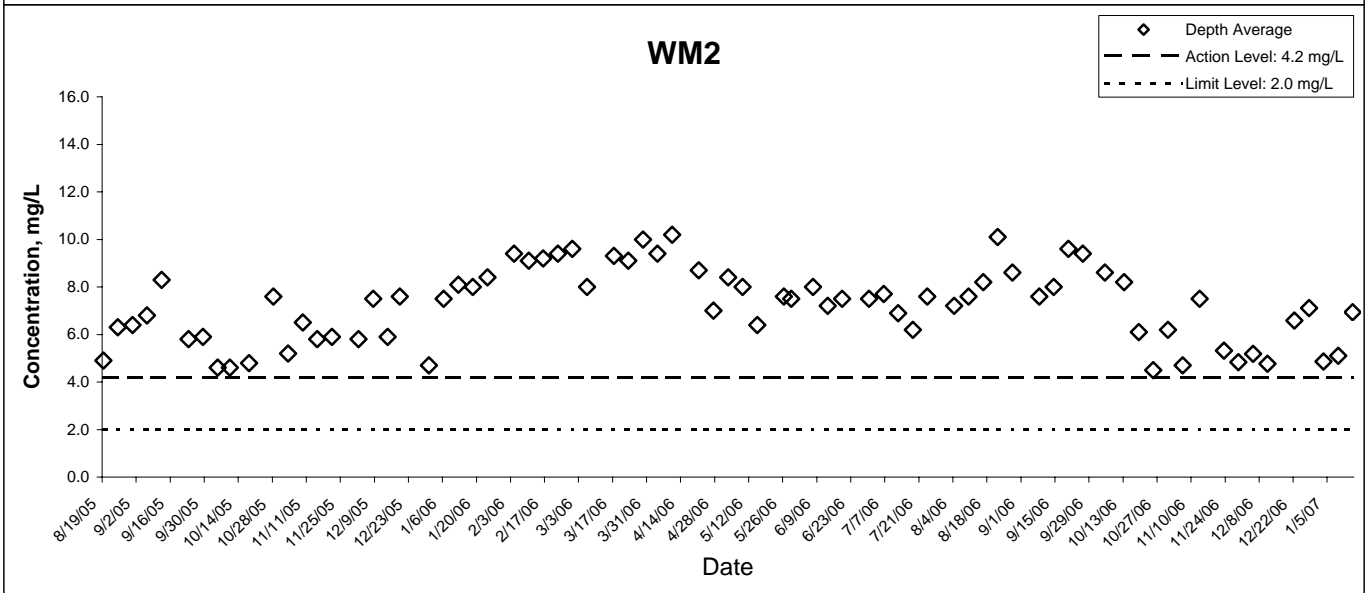
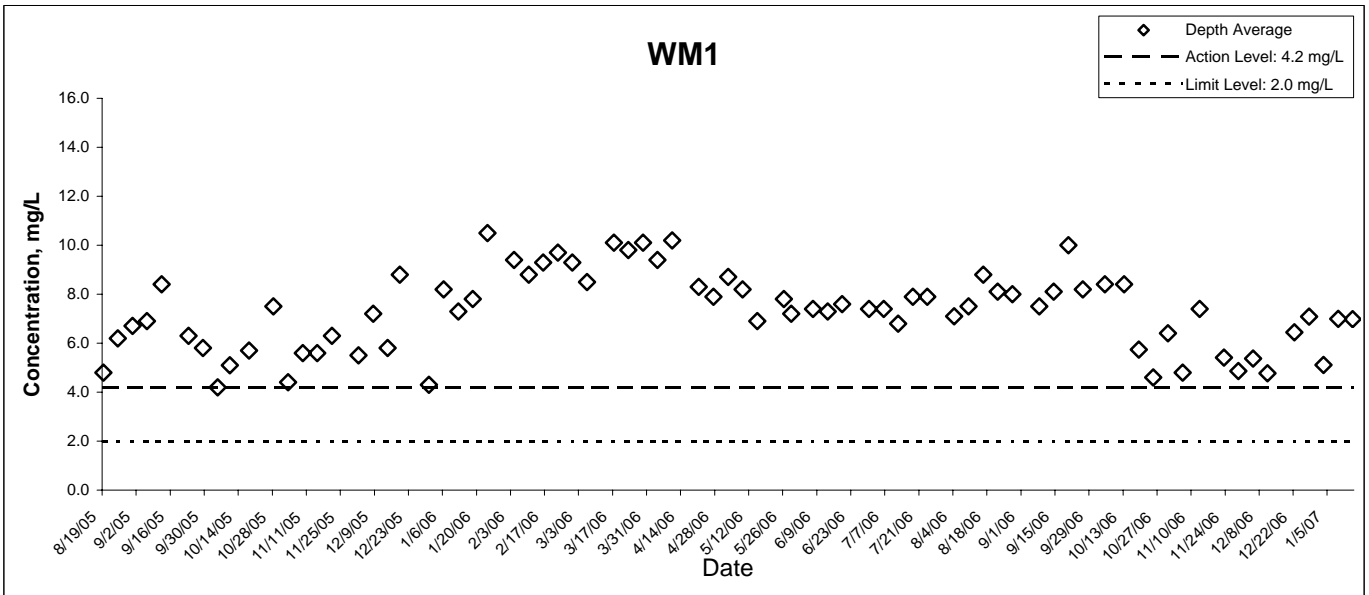
Water Quality Monitoring Results at WM5

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Monitoring																		
						Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)			
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value	DA	GM	
22-Dec-06	Sunny	Calm	9:59	Surface	1	0.2	<0.2	<0.02	<0.02	6.7	6.6	-	-	-	-	<0.01000	<0.01000	<0.00071	1.5	1.3	-	-	-	
				Bottom	3.7	<0.1		<0.02		6.5		-		-		0.01			1.1		-			
28-Dec-06	Fine	Moderate	9:48	Surface	1	0.2	0.2	<0.02	<0.02	6.9	7.0	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00070	2.2	1.8	<1	<1	<2	
				Bottom	3.5	0.2		<0.02		7.1		<2		4.0		<0.01000			1.3		<1			
3-Jan-07	Fine	Moderate	9:46	Surface	1	0.3	0.3	<0.02	<0.02	6.2	6.4	-	-	-	-	<0.01000	<0.01000	<0.00069	1.6	1.5	-	-	-	
				Bottom	3.9	0.3		<0.02		6.5		-		-		<0.01000			1.4		-			
9-Jan-07	Sunny	Calm	9:52	Surface	1	<0.1	<0.1	<0.02	<0.02	7.4	7.4	<2	<2	4.0	4.0	<0.01000	<0.01000	<0.00068	1.5	1.5	<1	<1	<2	
				Bottom	3.5	0.1		<0.02		7.4		<2		3.0		<0.01000			1.4		<1			
15-Jan-07	Cloudy	Calm	9:54	Surface	1	0.3	0.3	<0.02	<0.02	7.5	7.5	-	-	-	-	0.01	0.010	<0.00067	1.4	1.5	-	-	-	
				Bottom	3.6	0.3		<0.02		7.5		-		-		0.01			1.5		-			

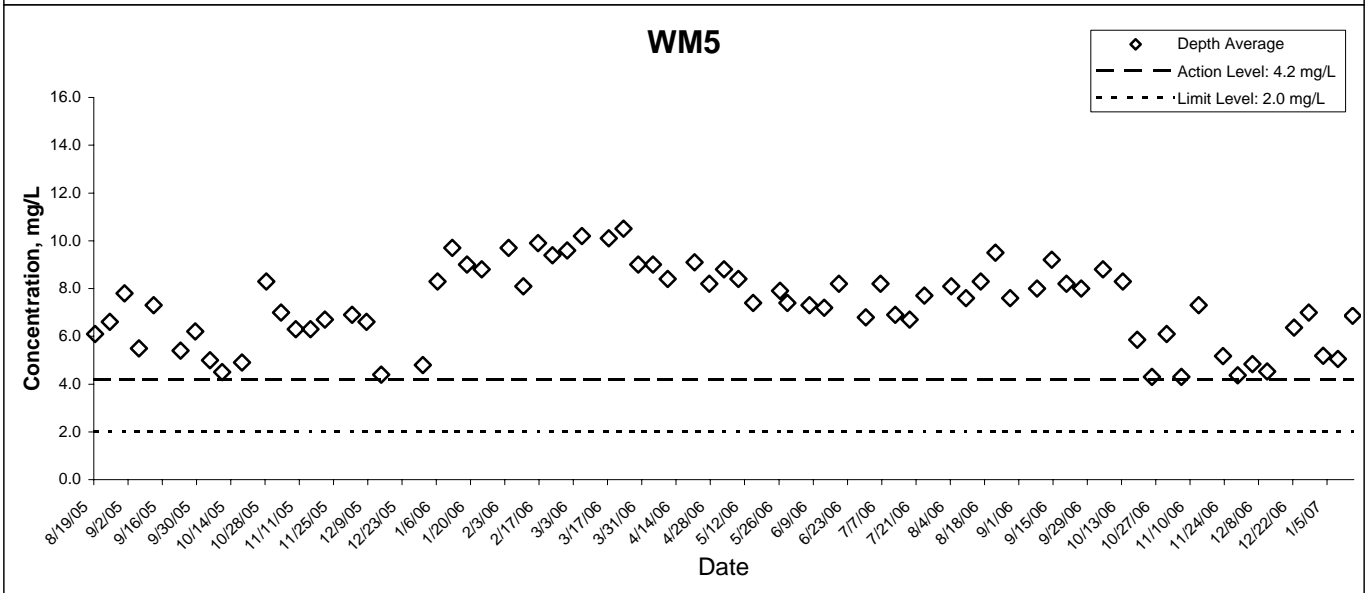
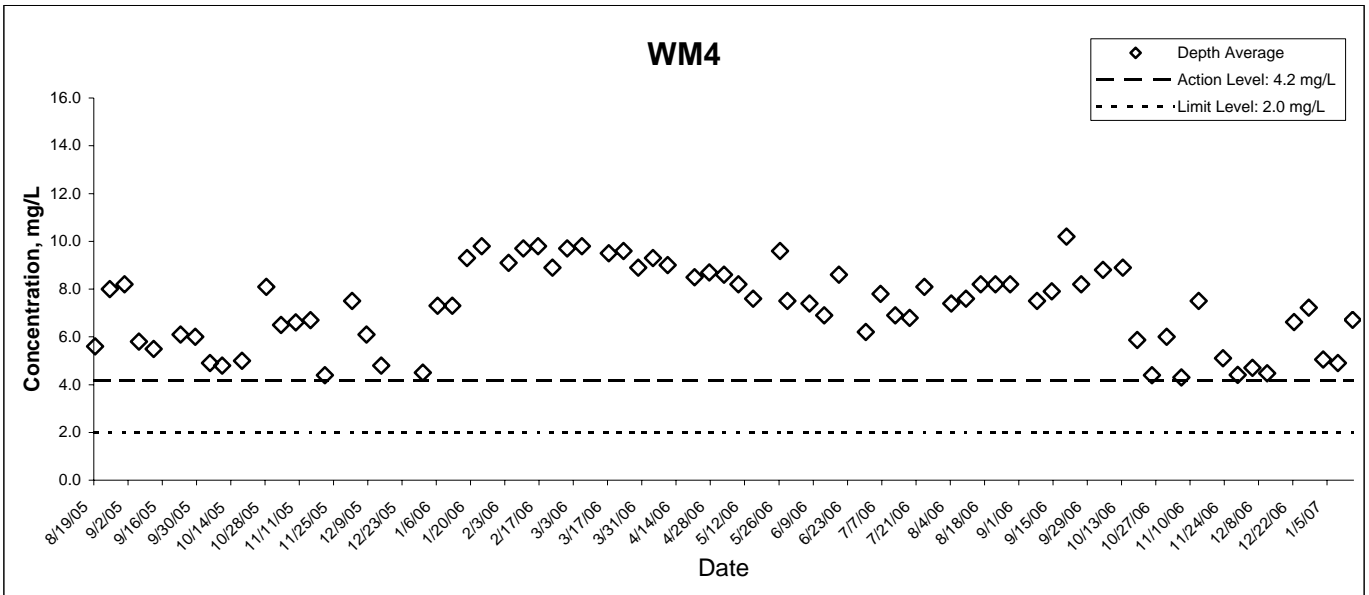
Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
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 GM - Geometric Mean for last 5 measurements

Remarks: * Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

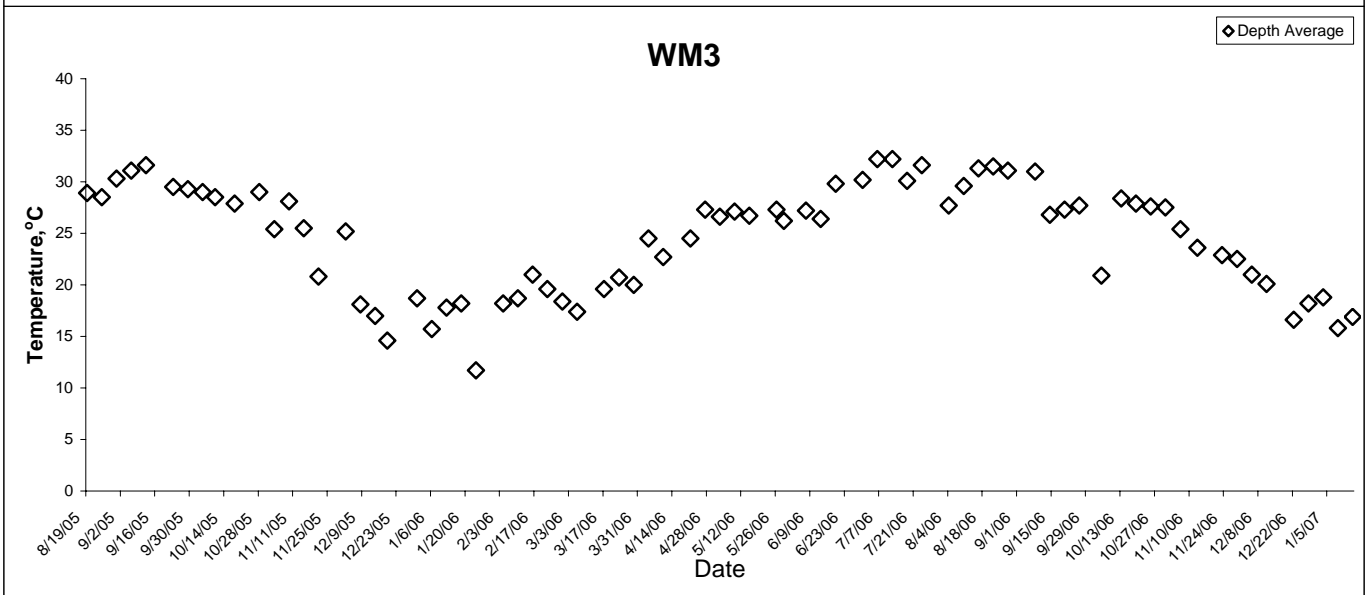
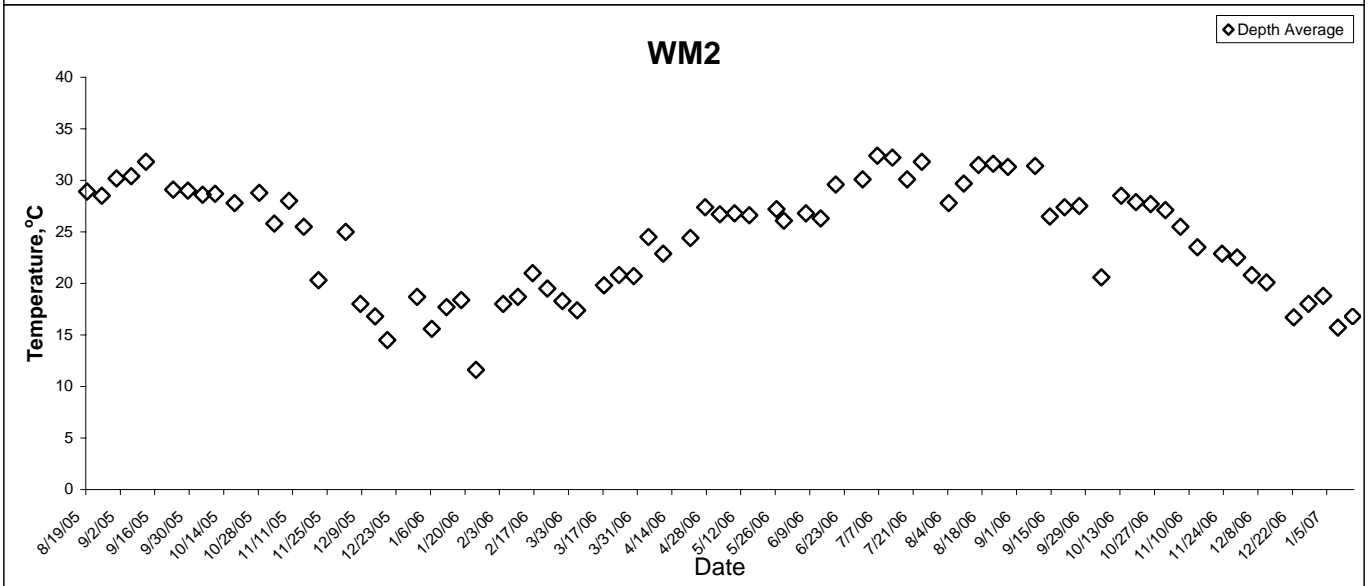
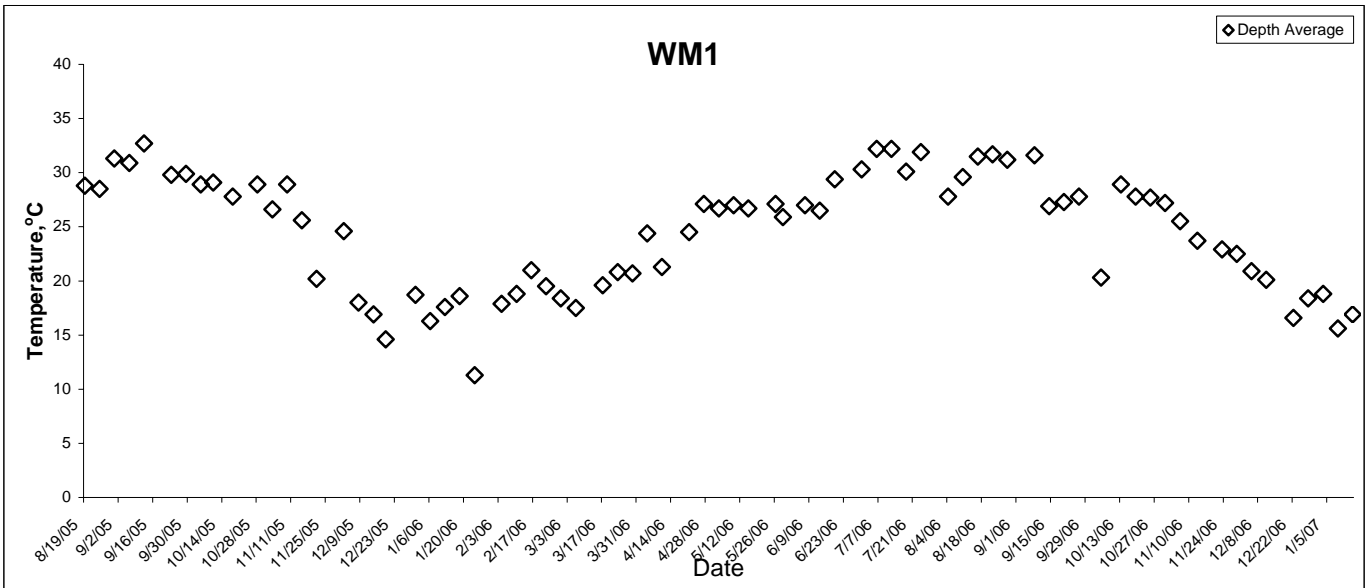
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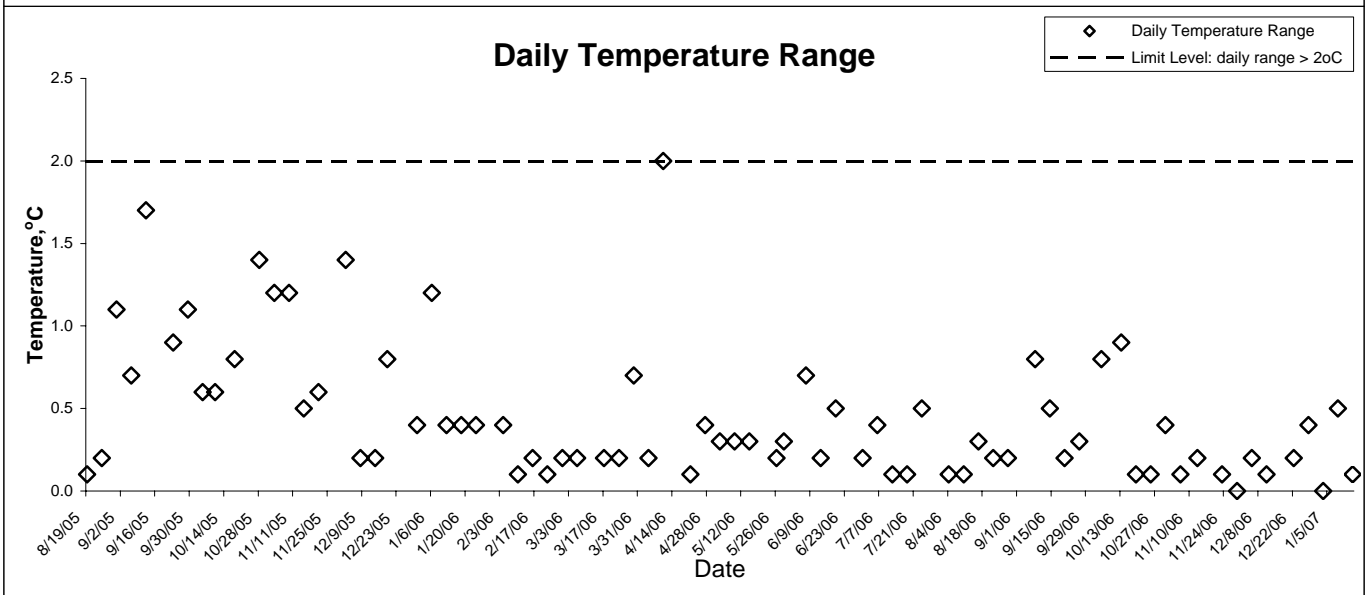
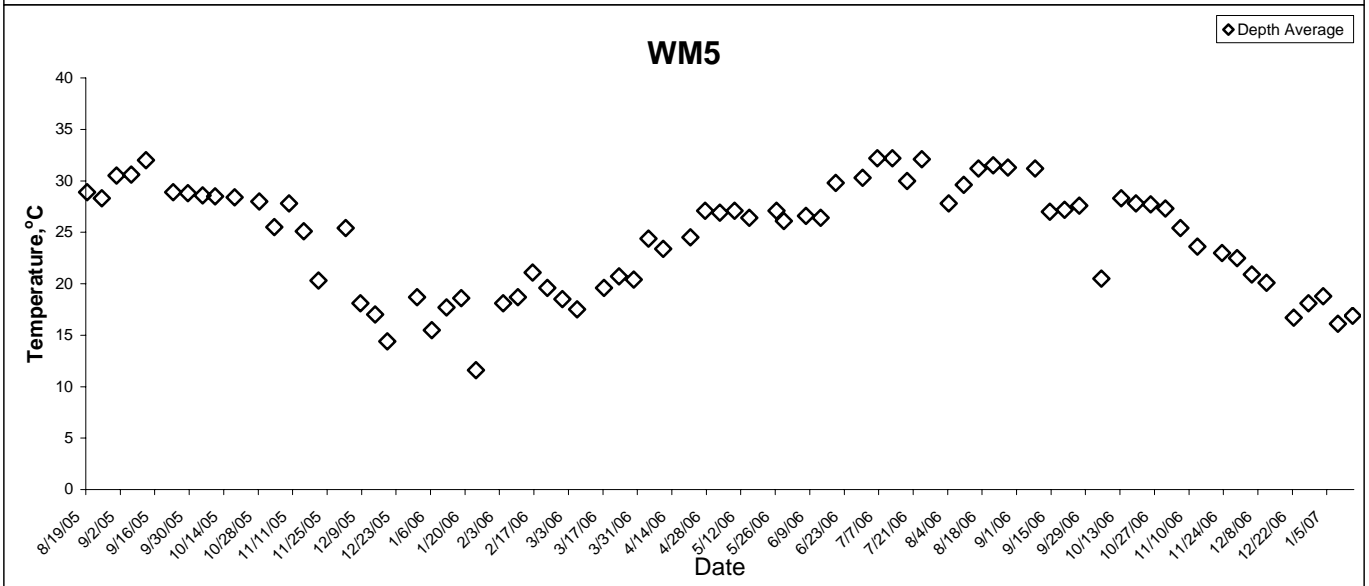
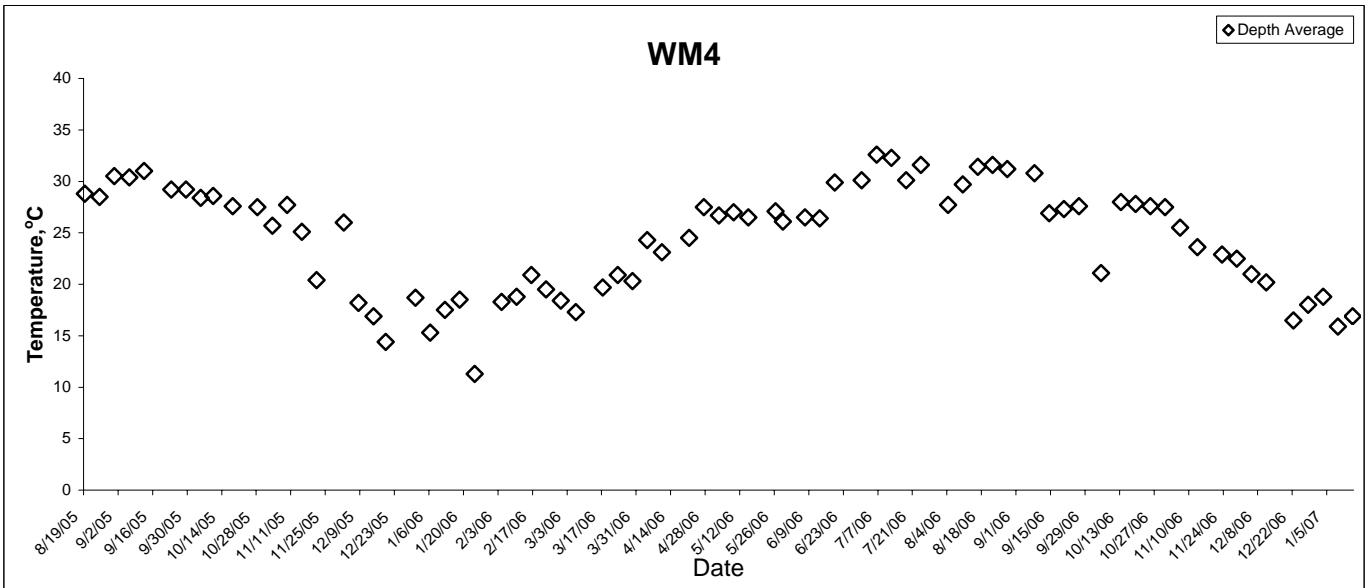
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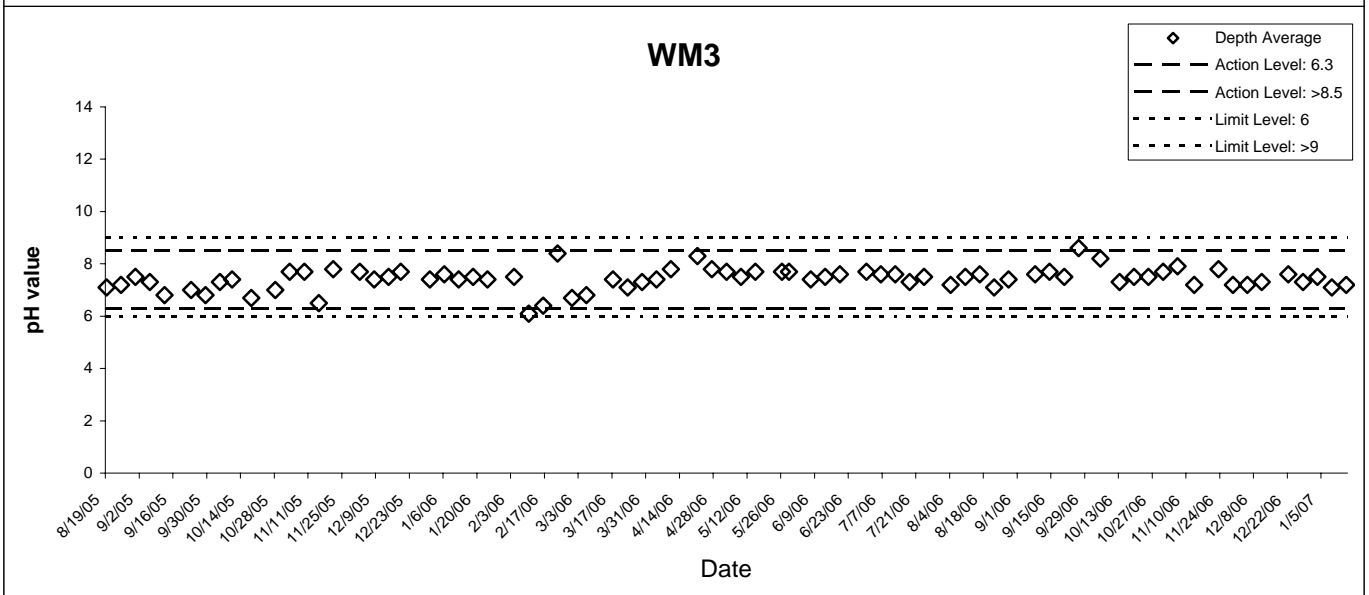
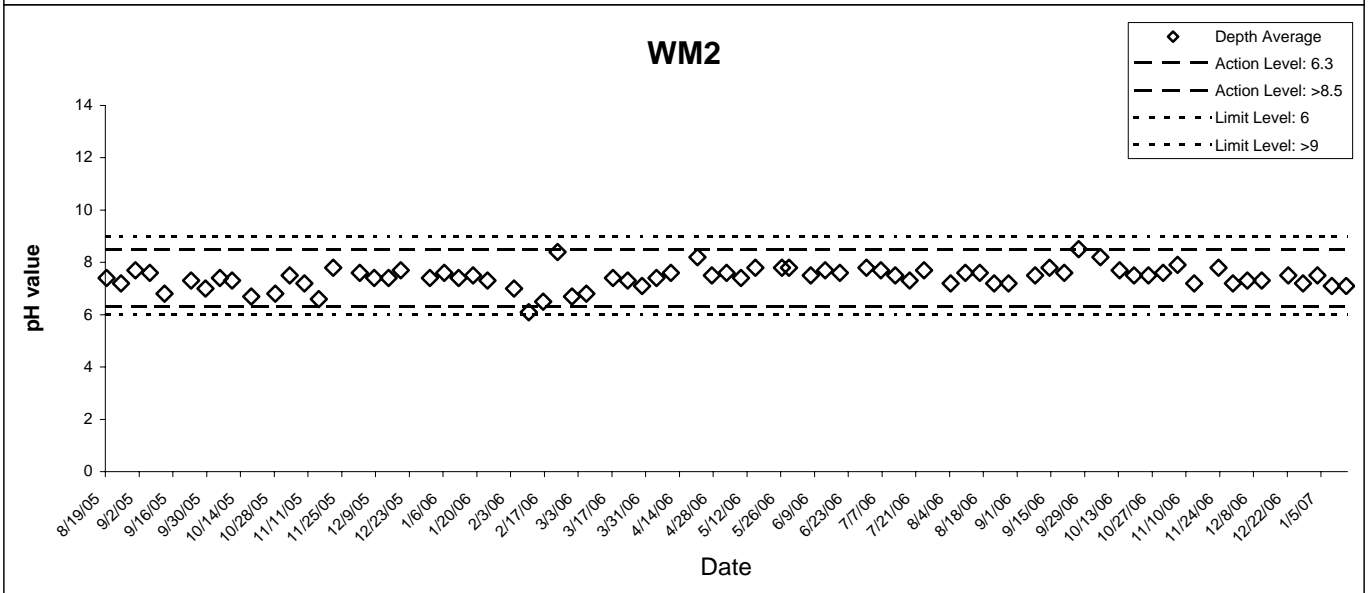
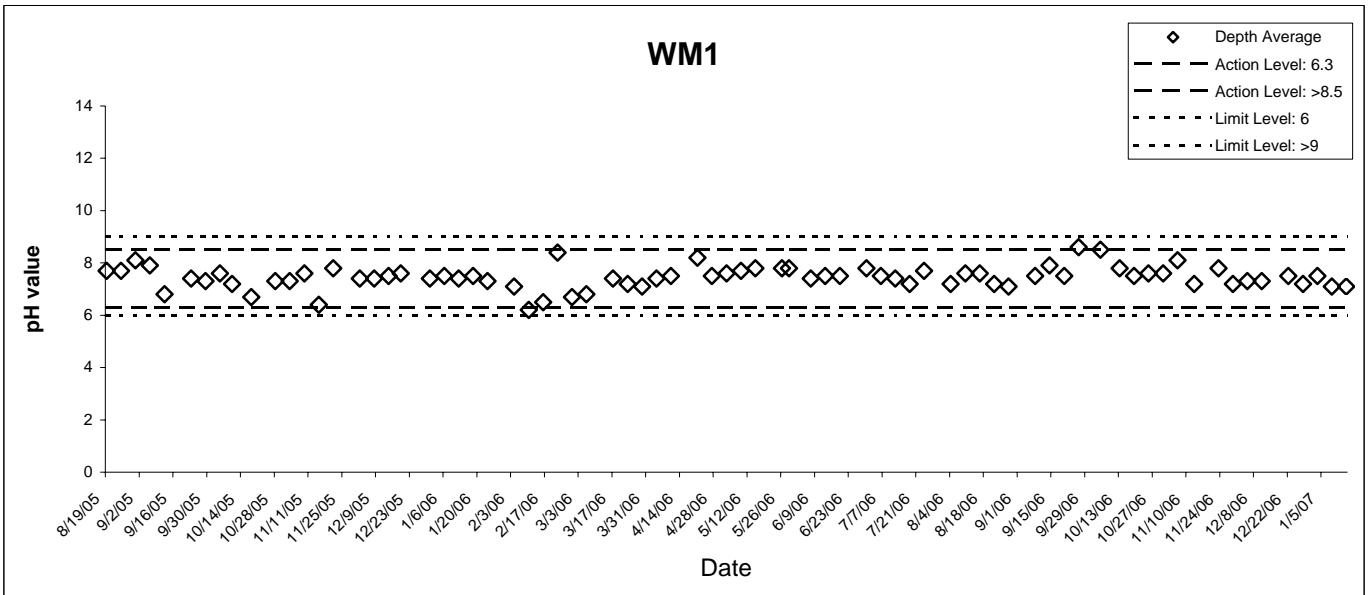
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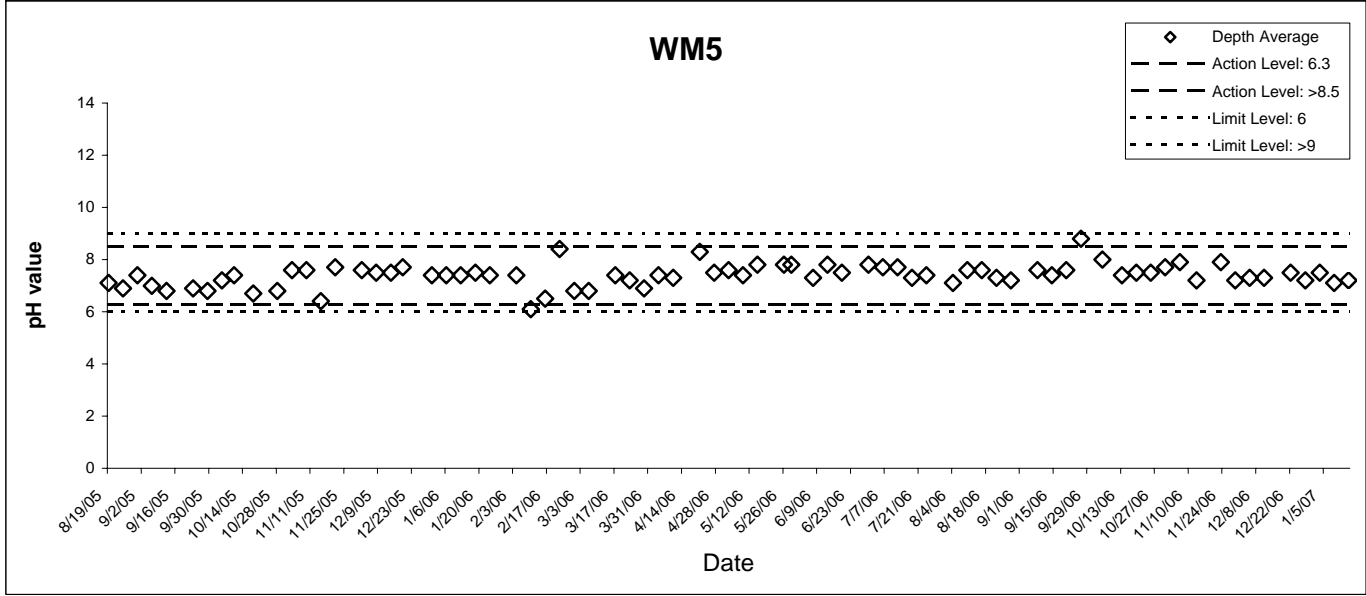
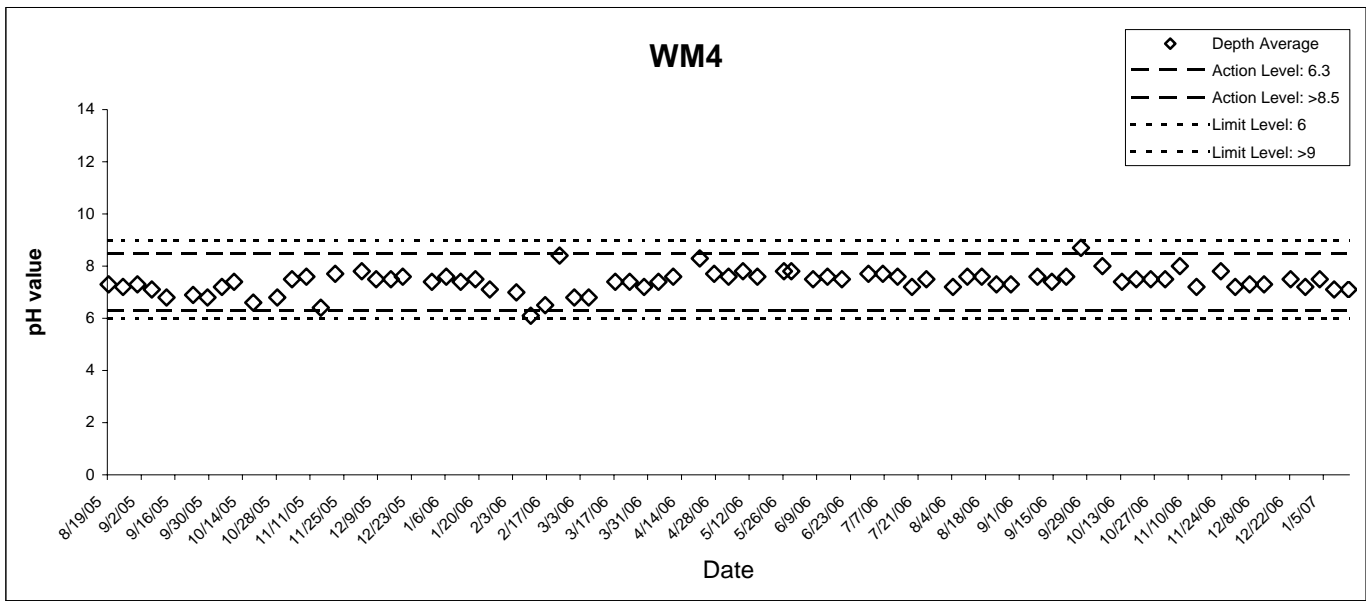
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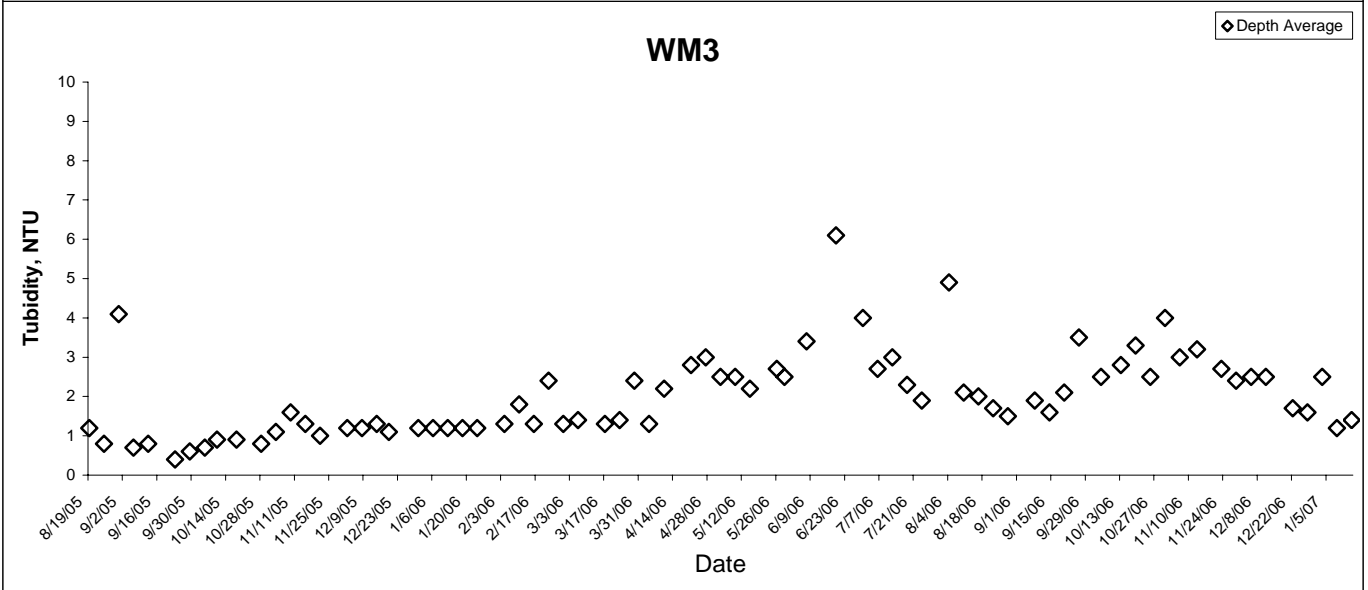
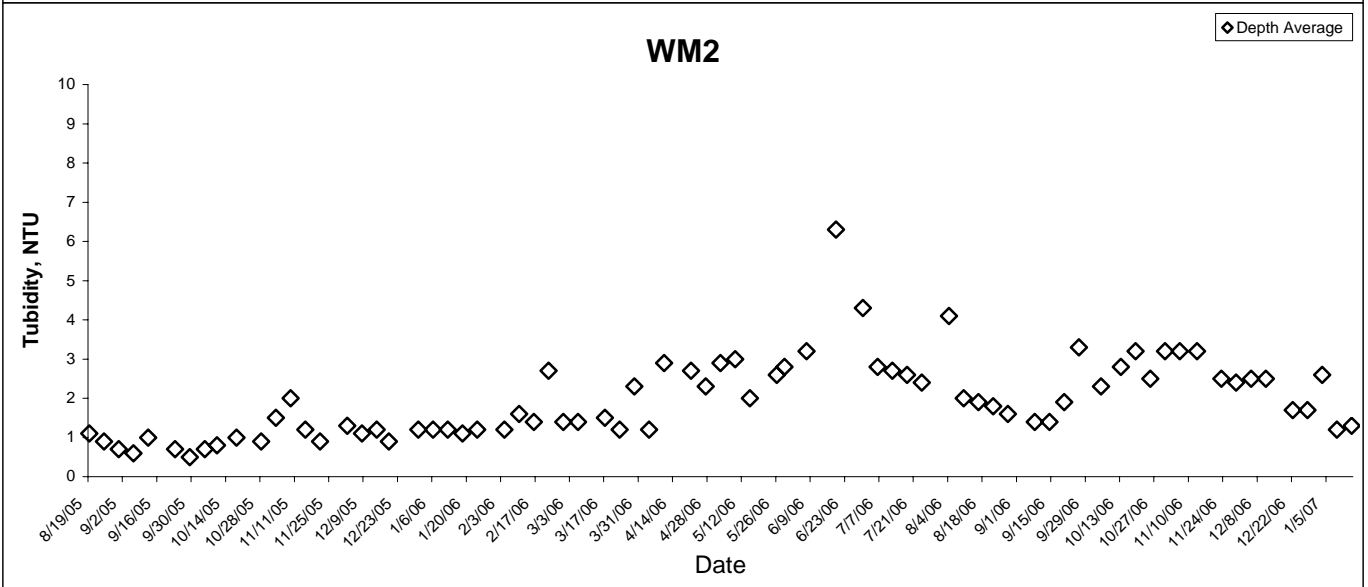
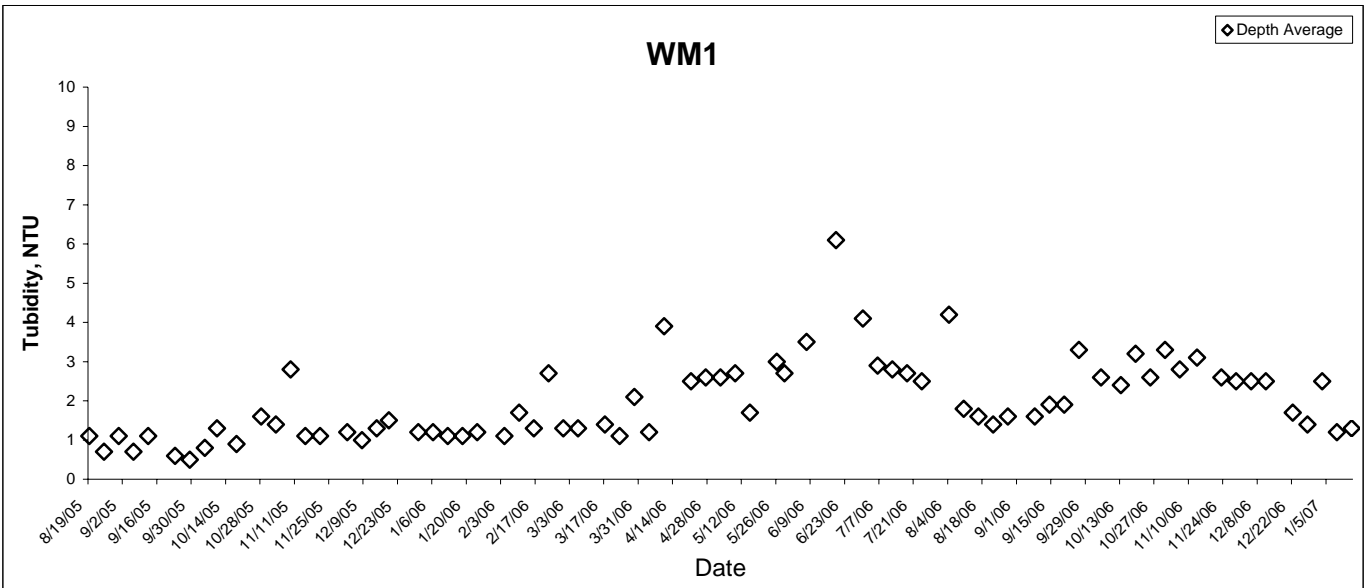
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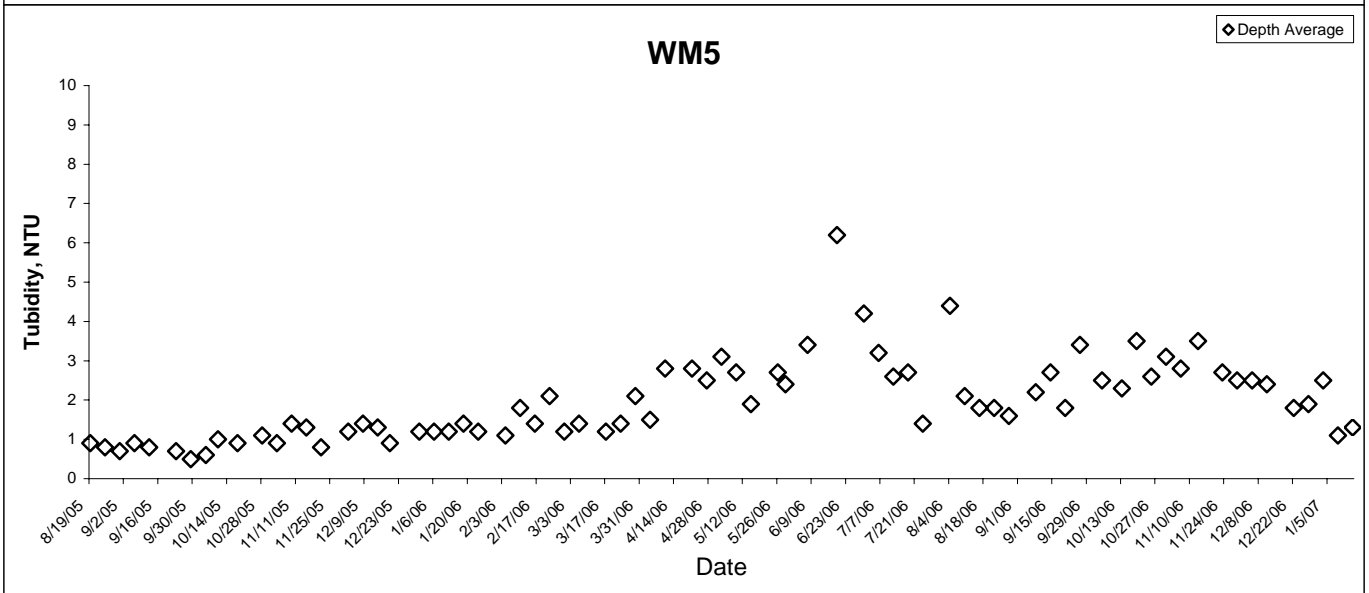
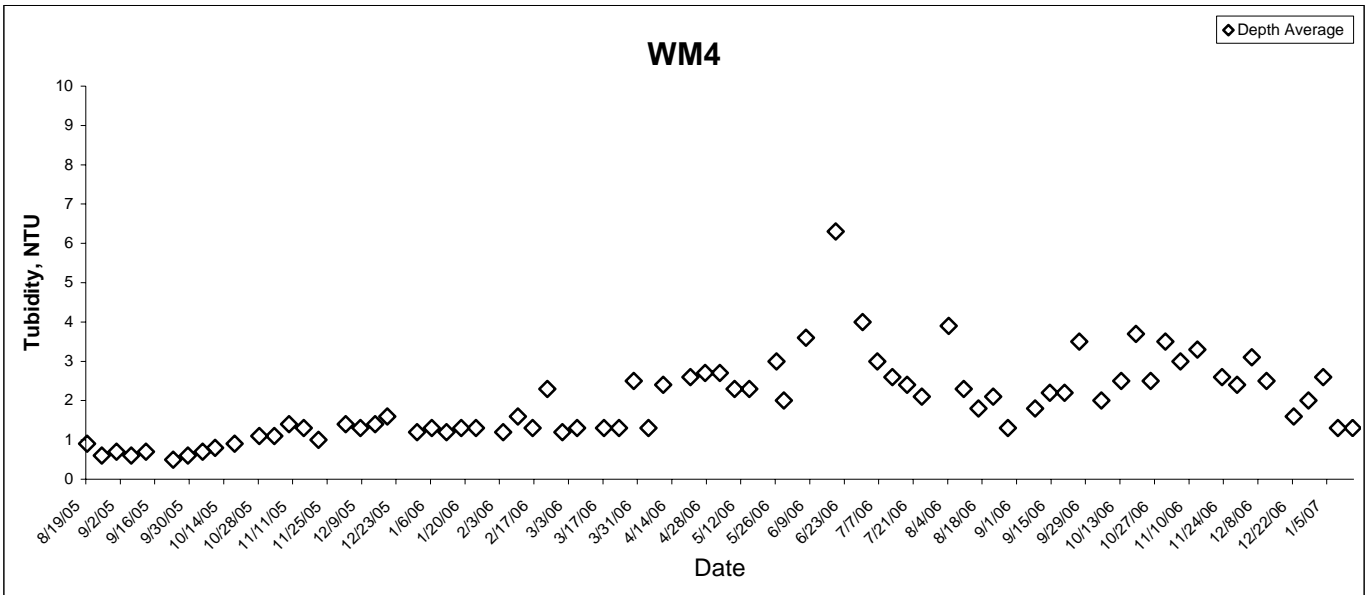
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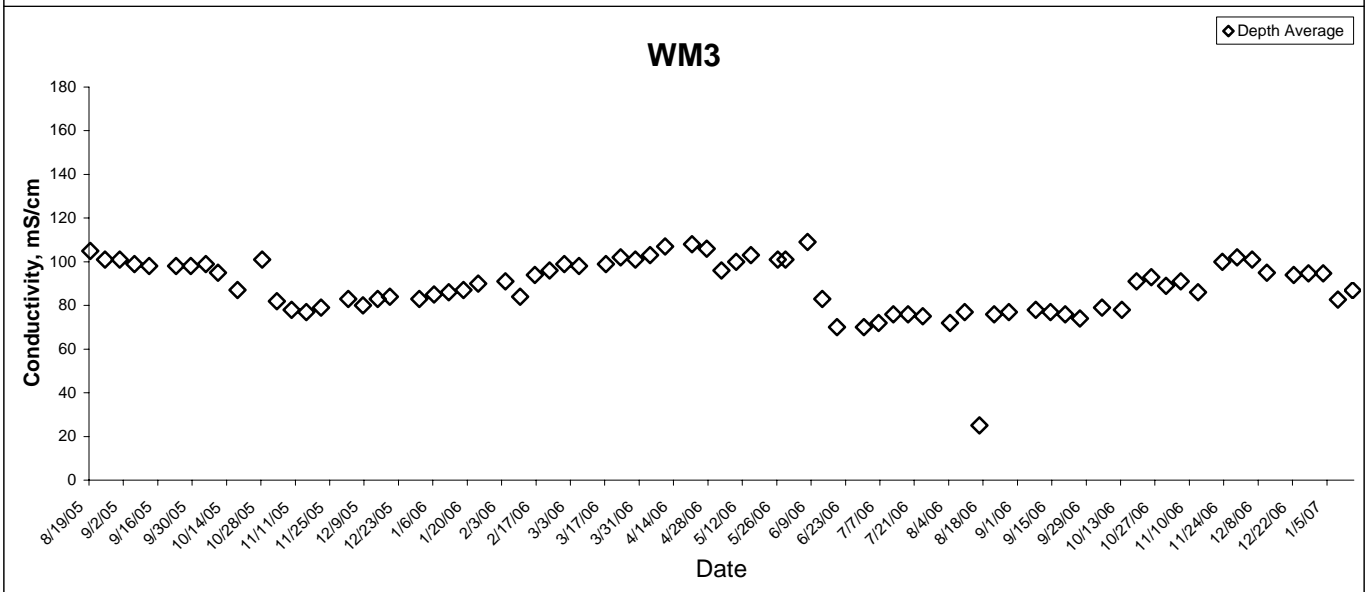
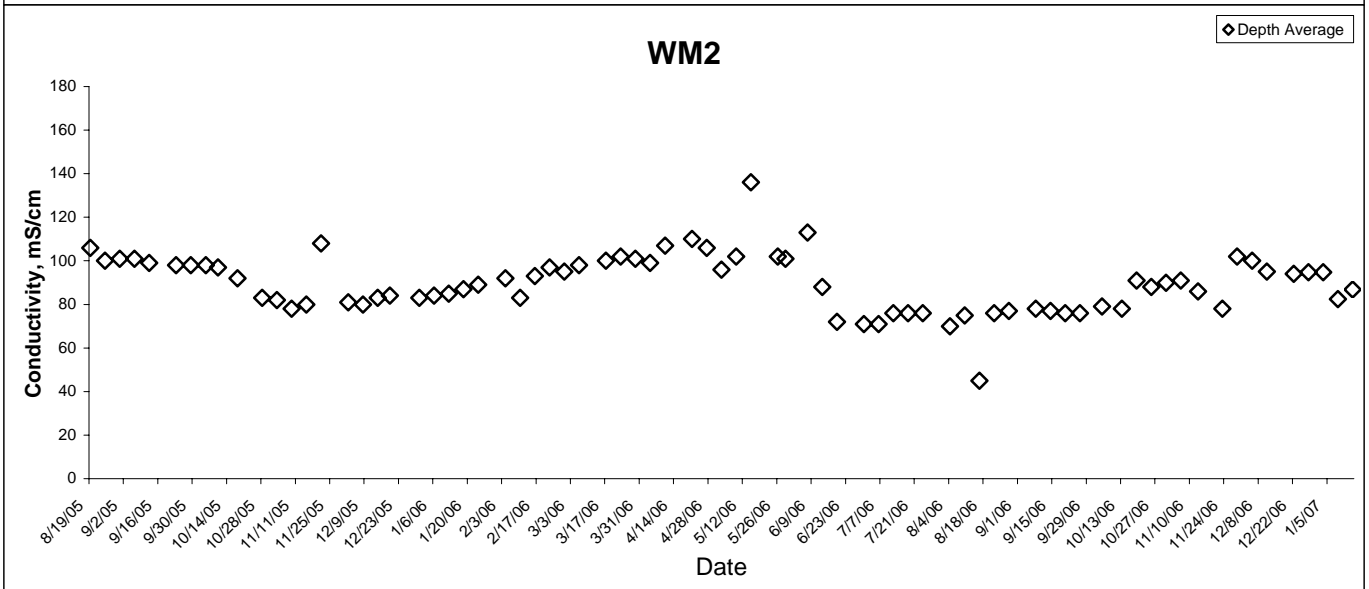
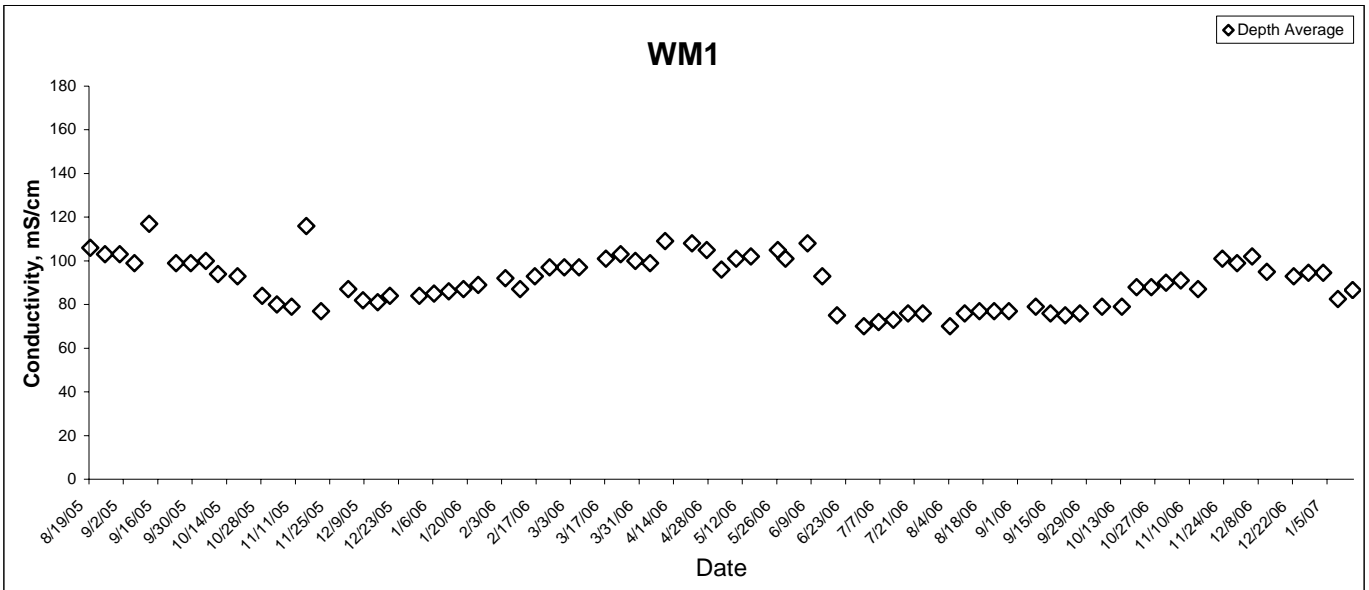
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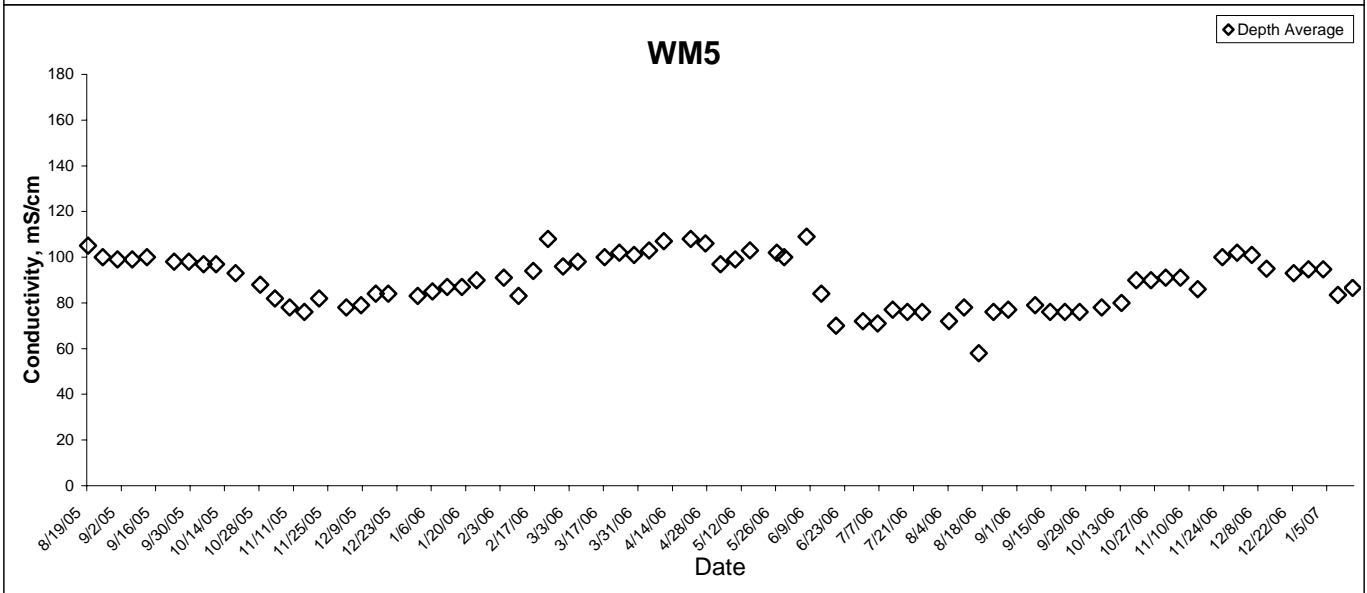
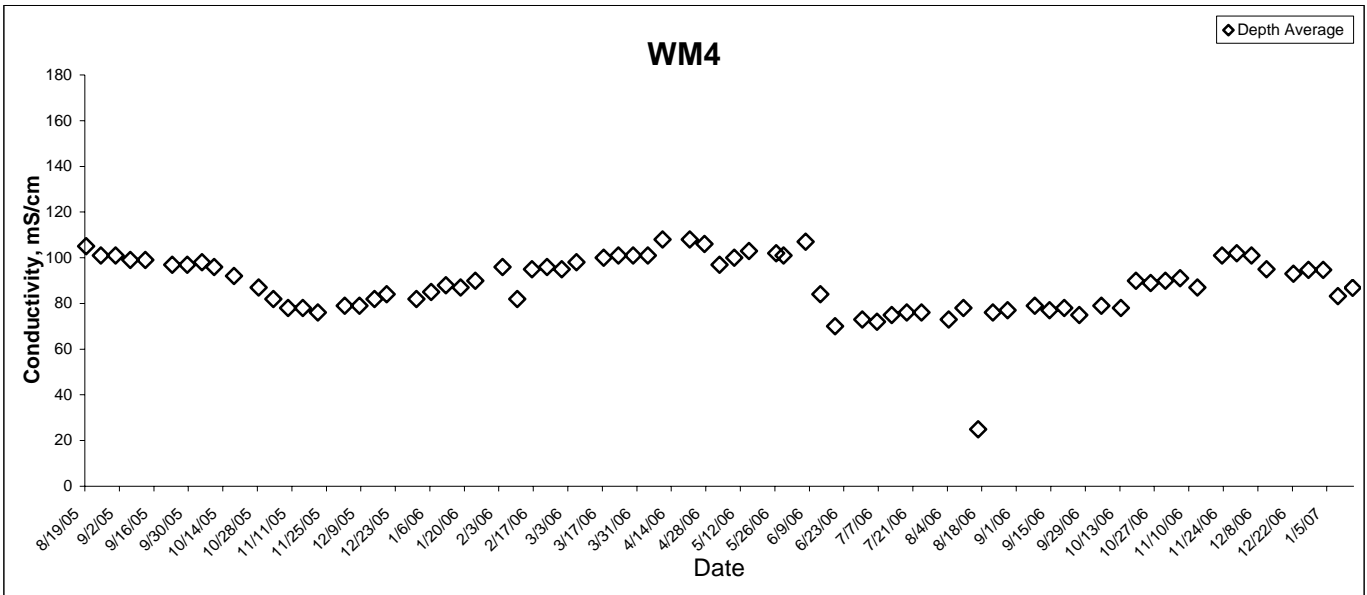
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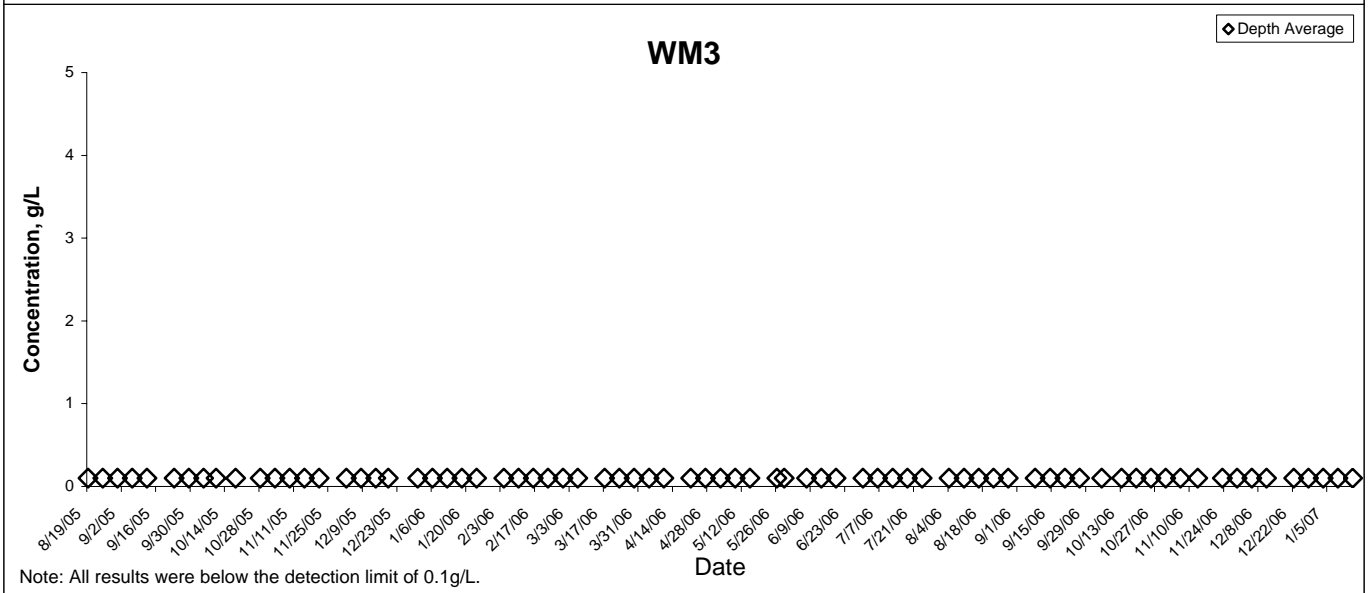
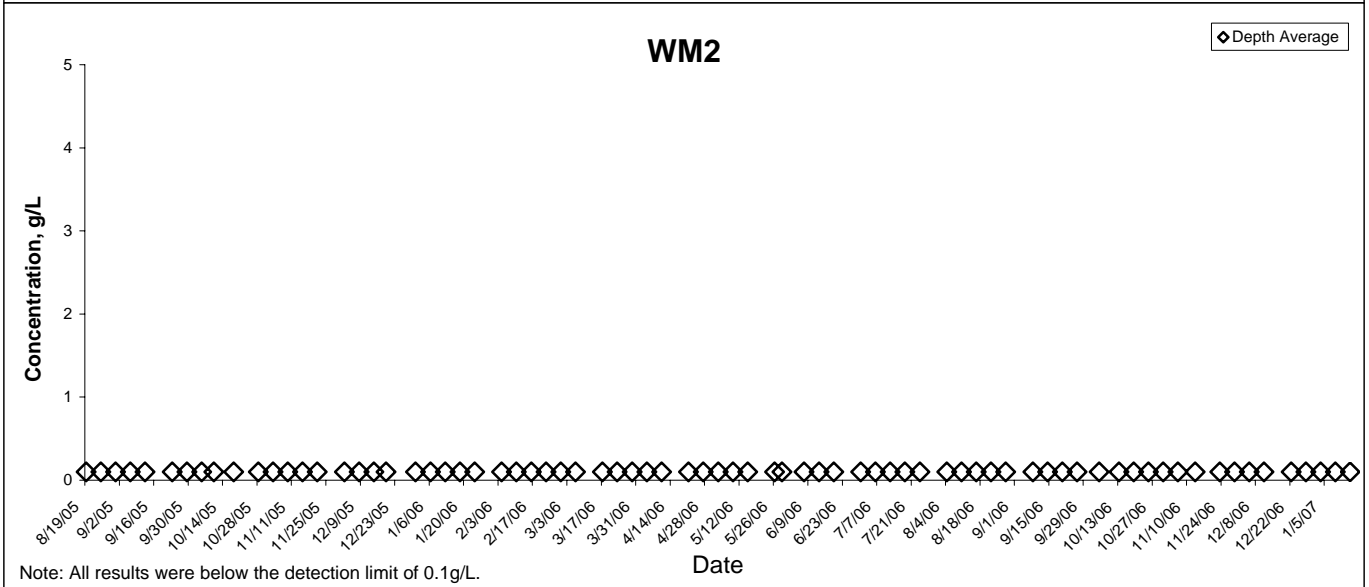
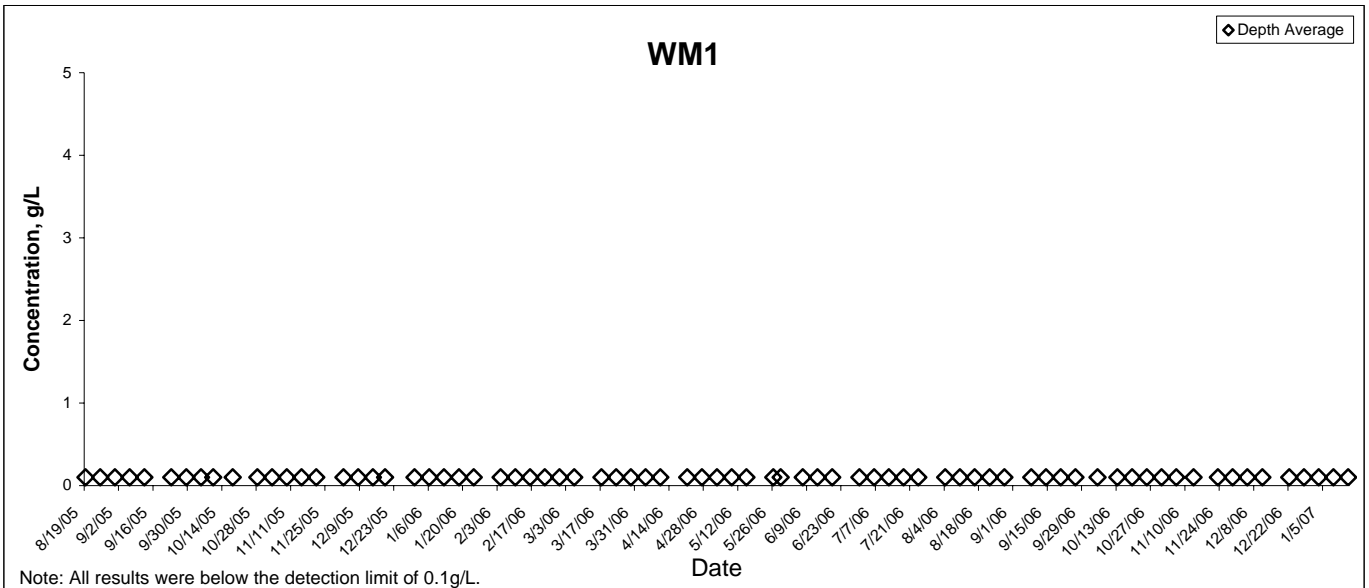
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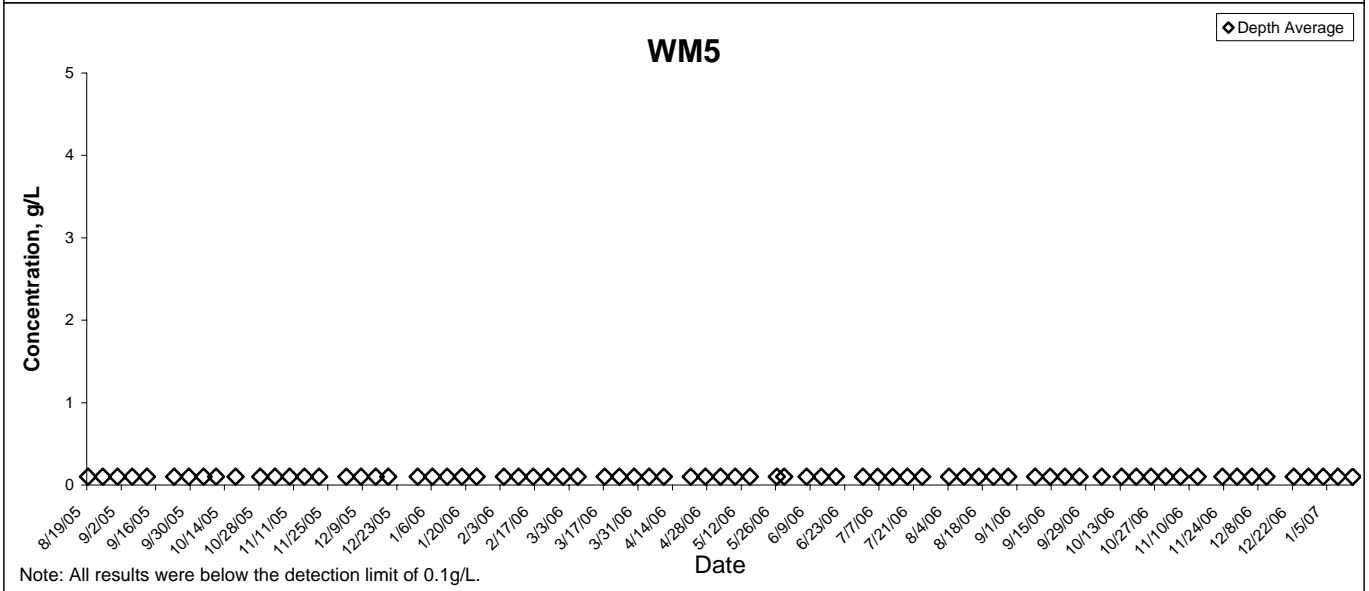
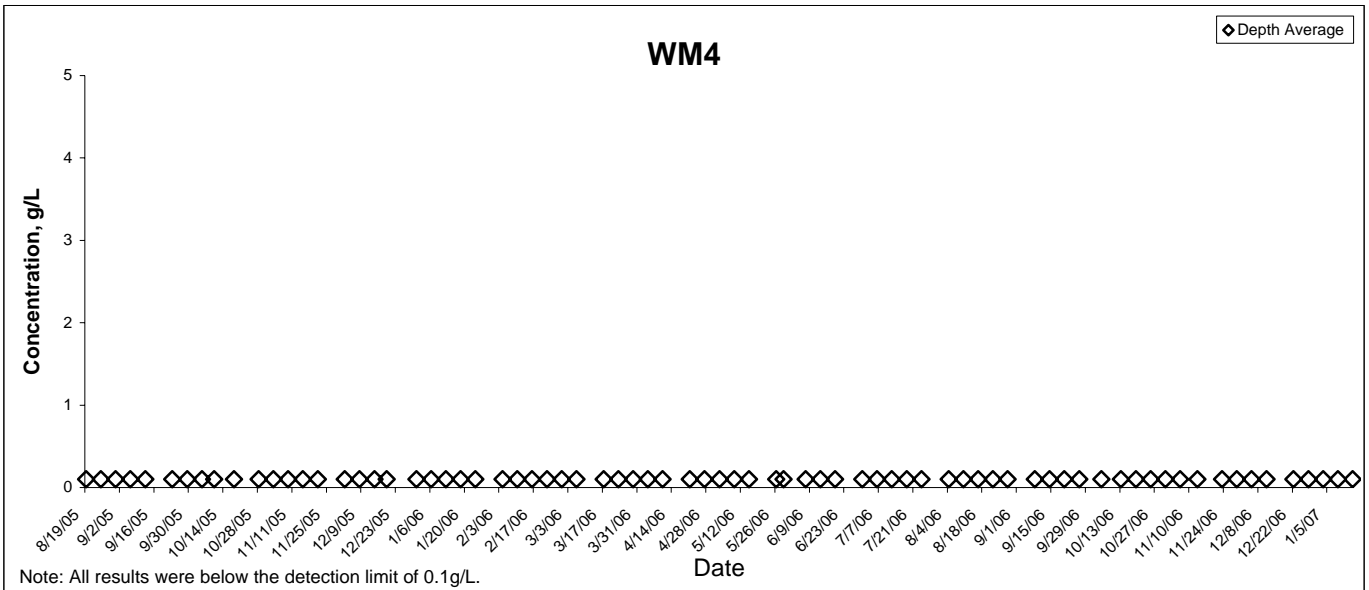
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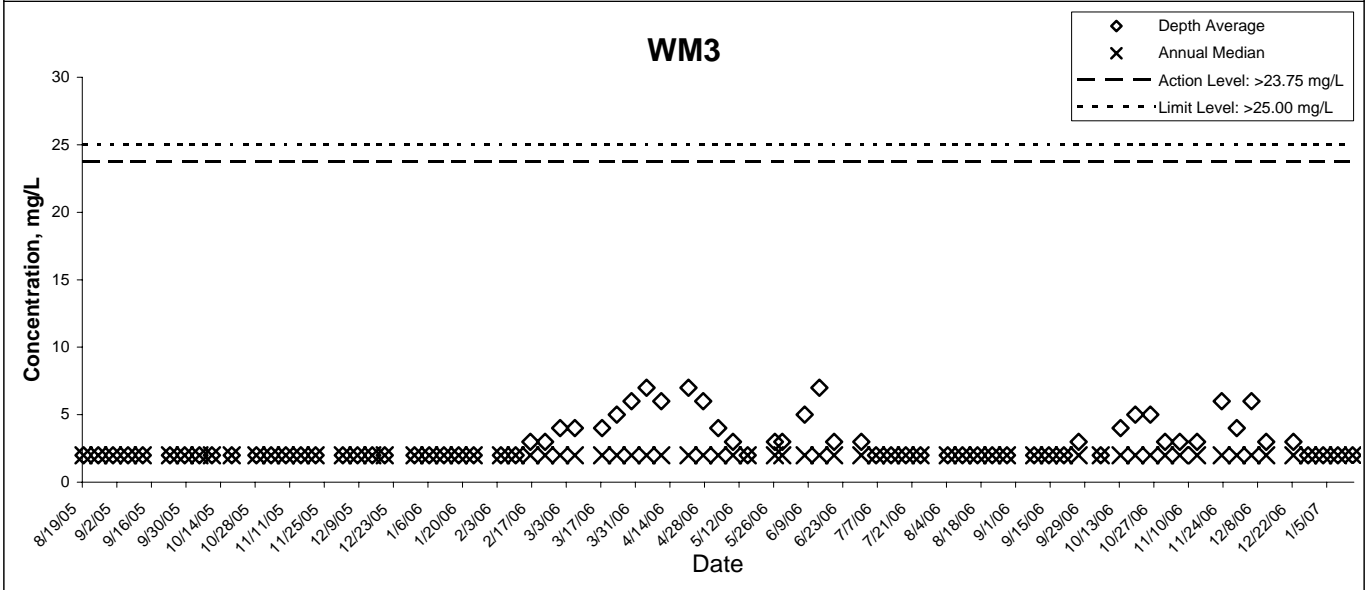
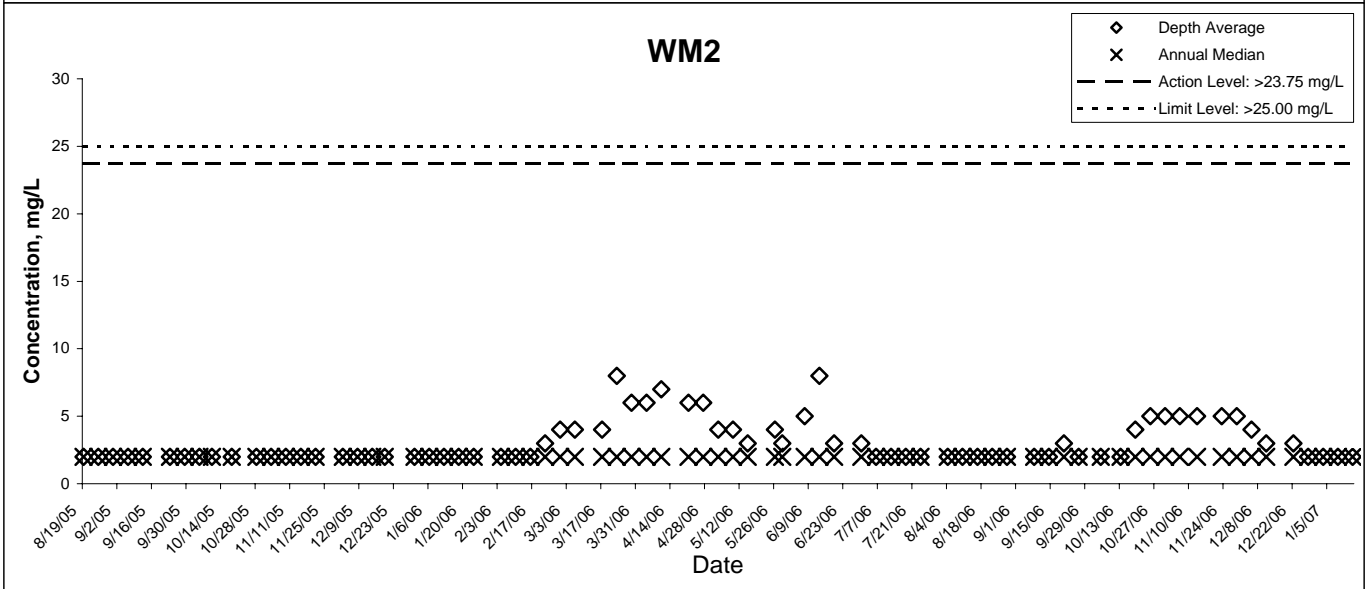
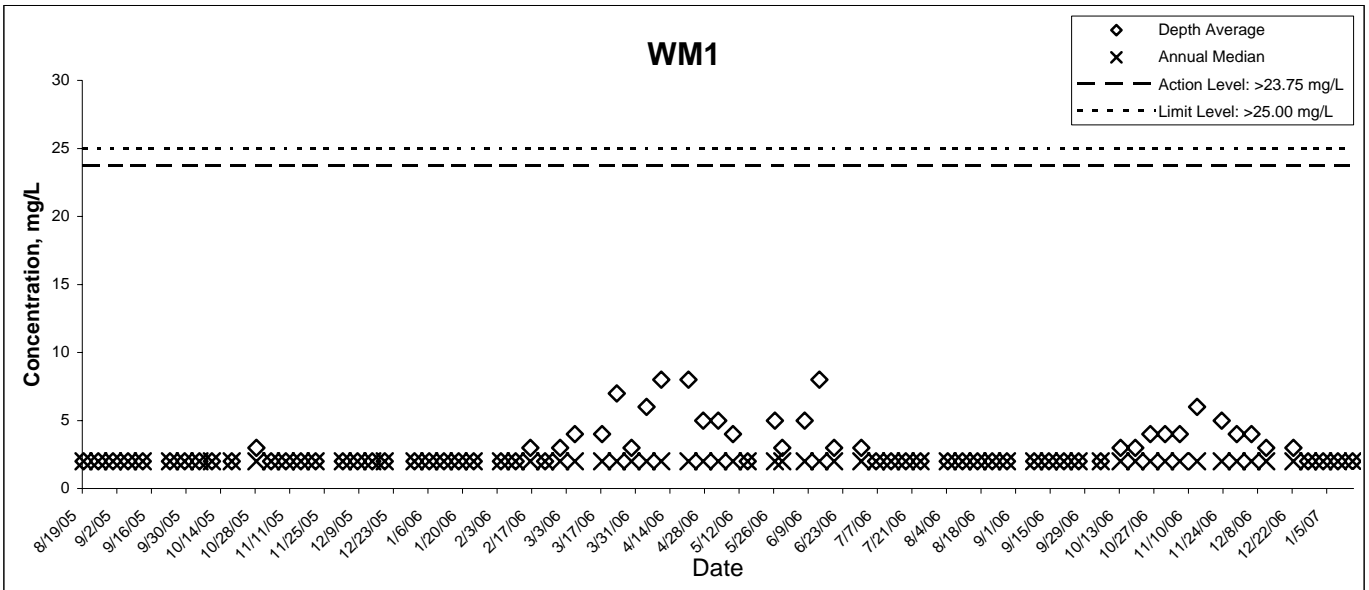
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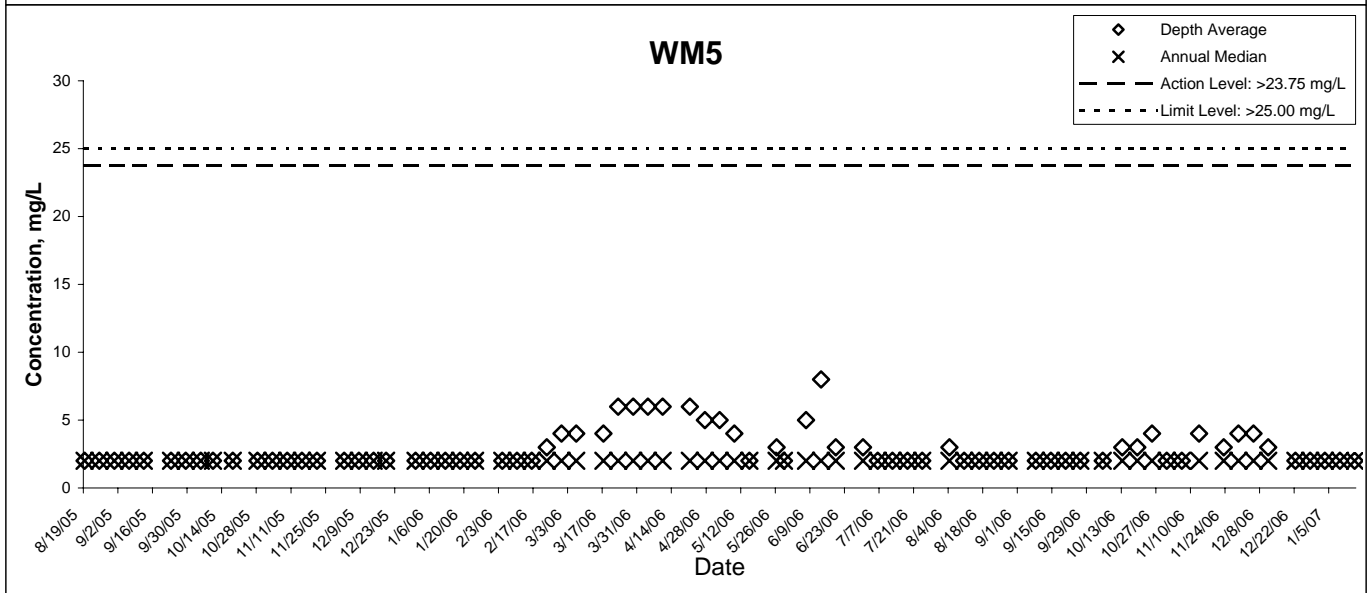
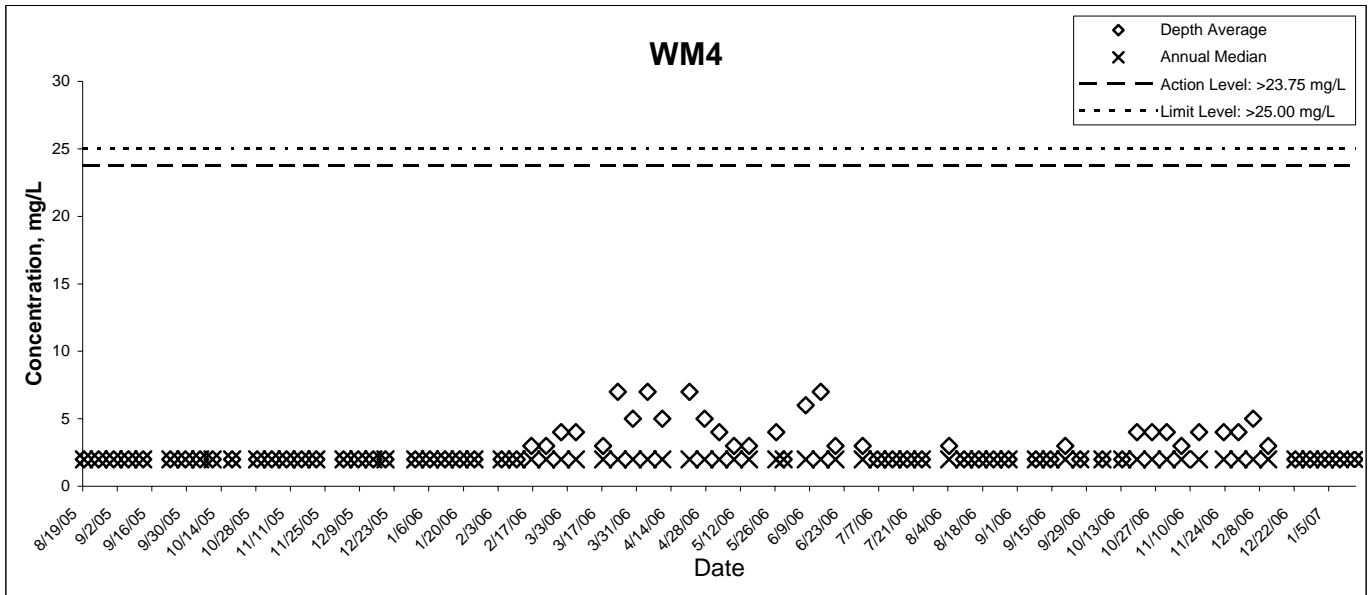
Salinity



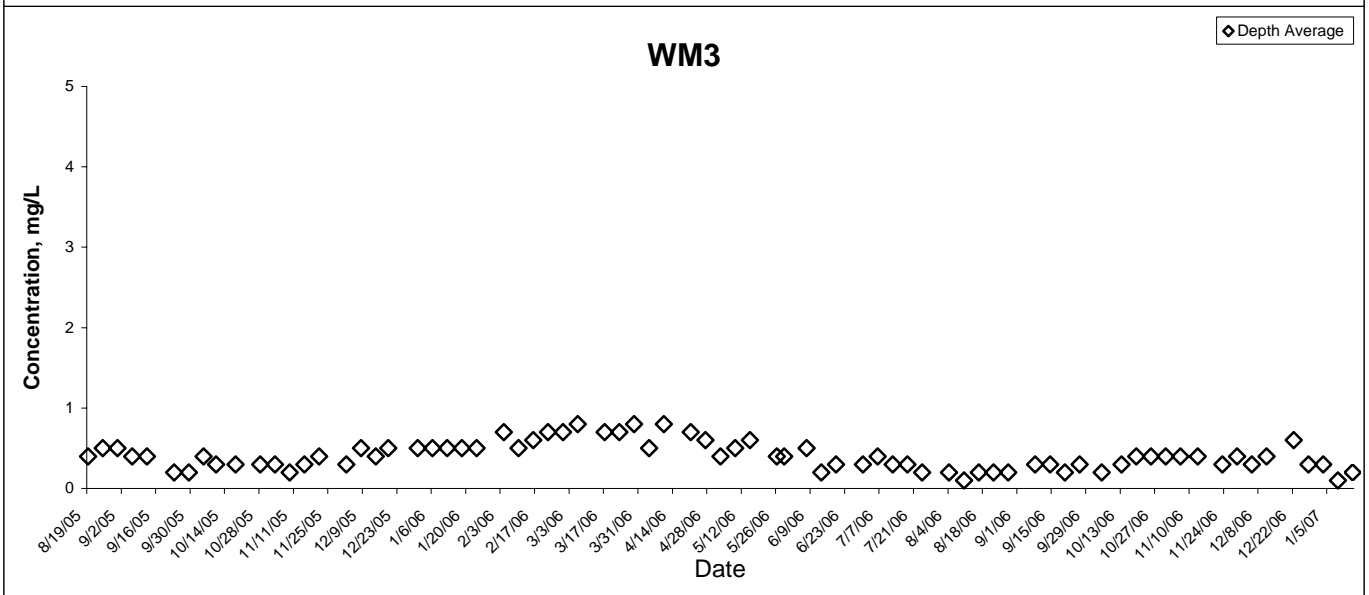
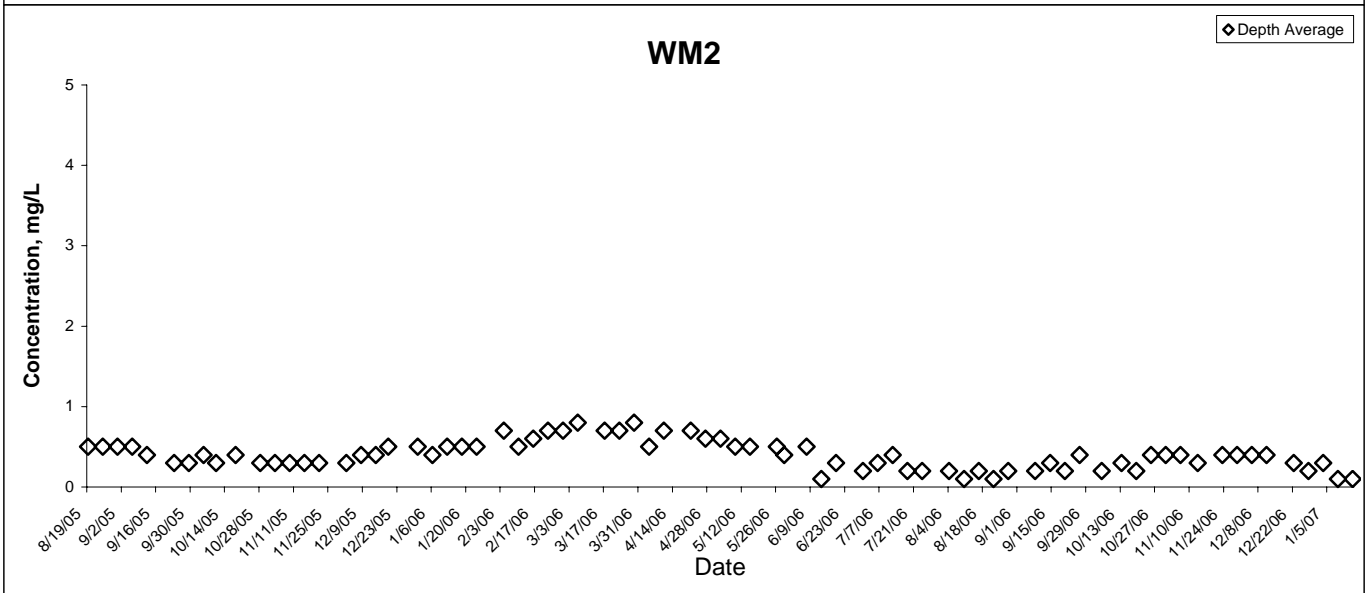
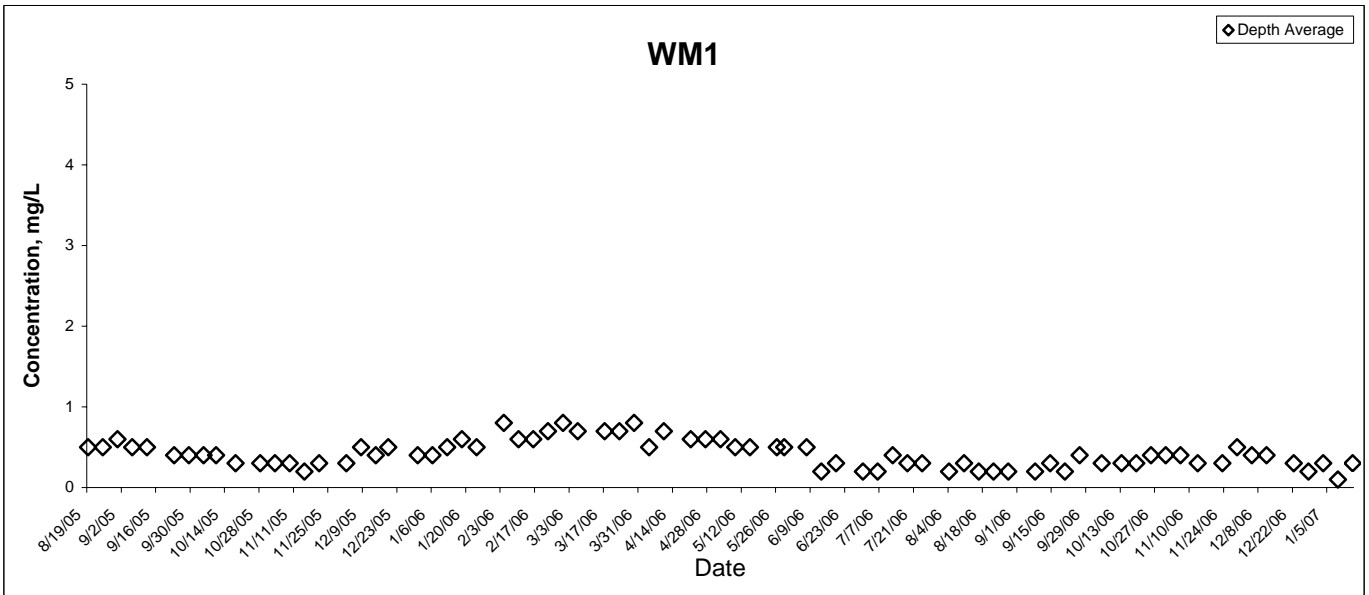
Suspended Solids



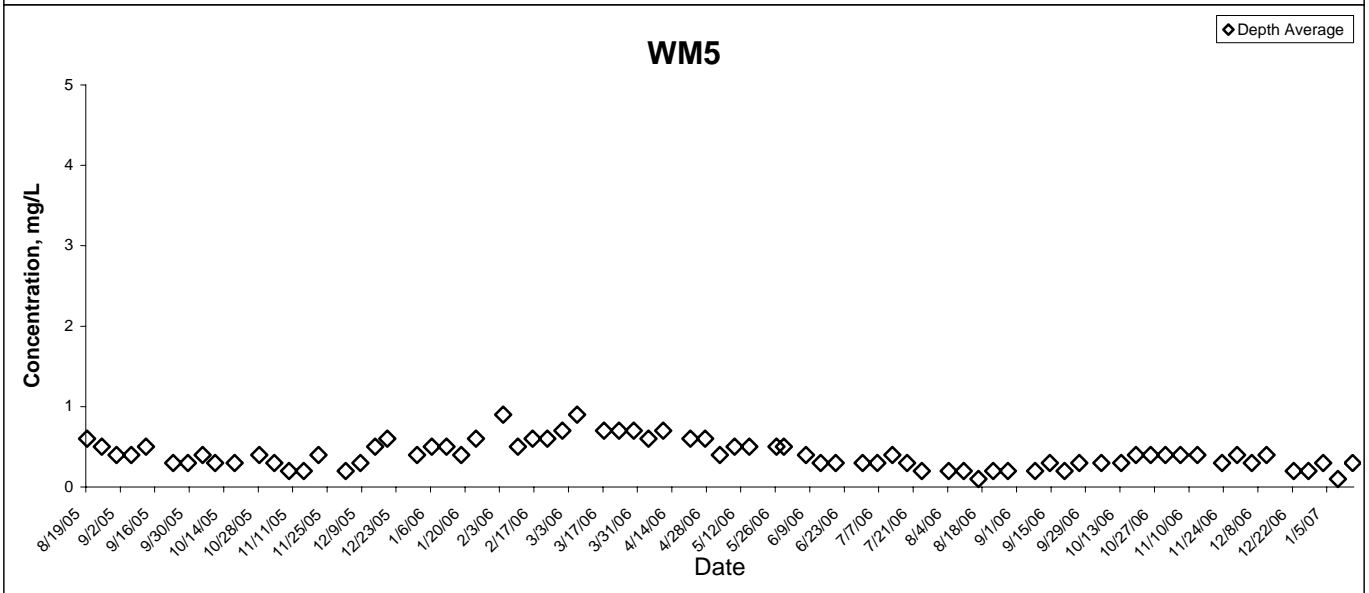
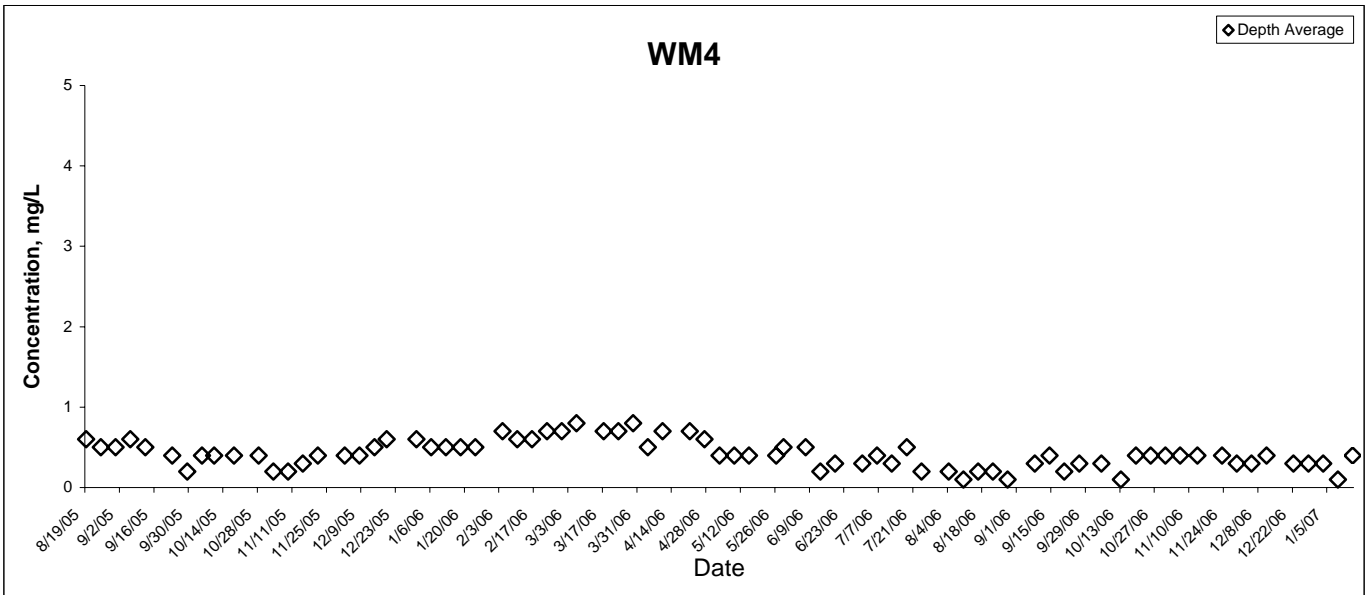
Suspended Solids



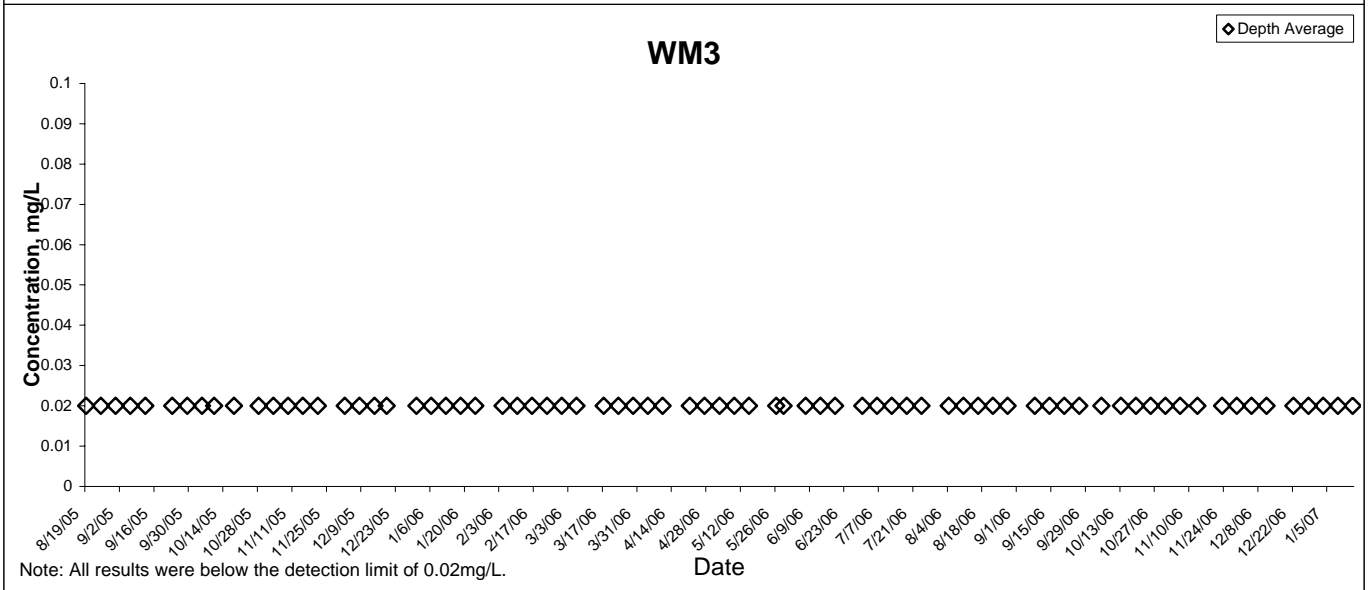
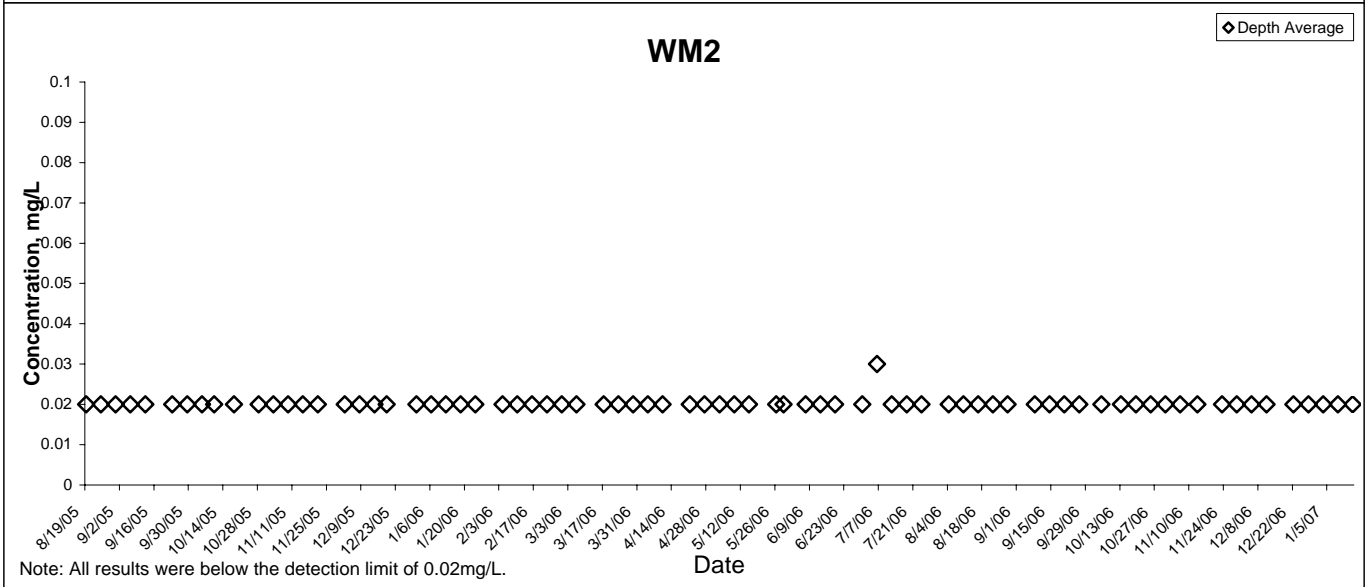
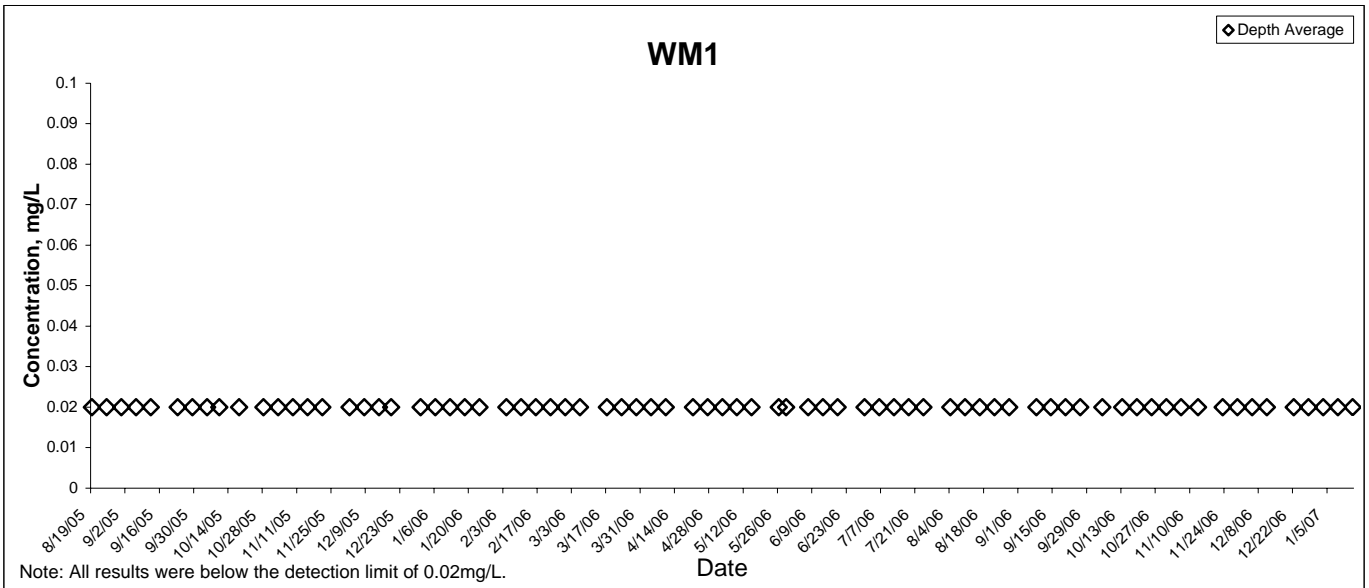
Total Nitrogen



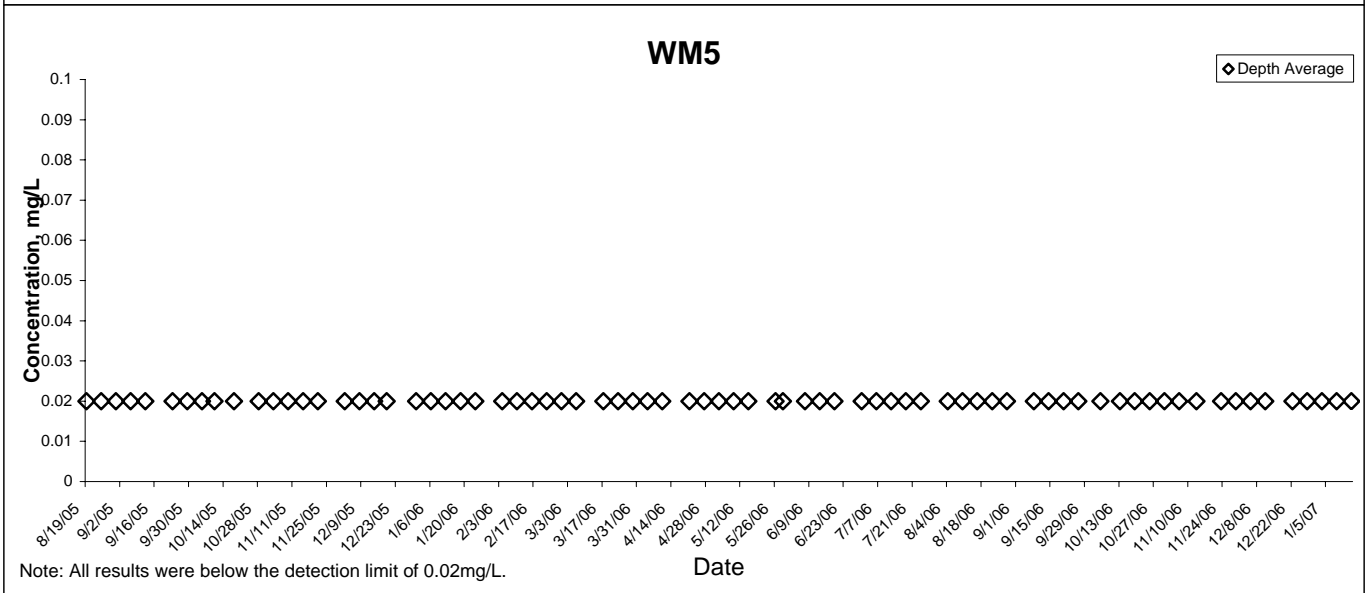
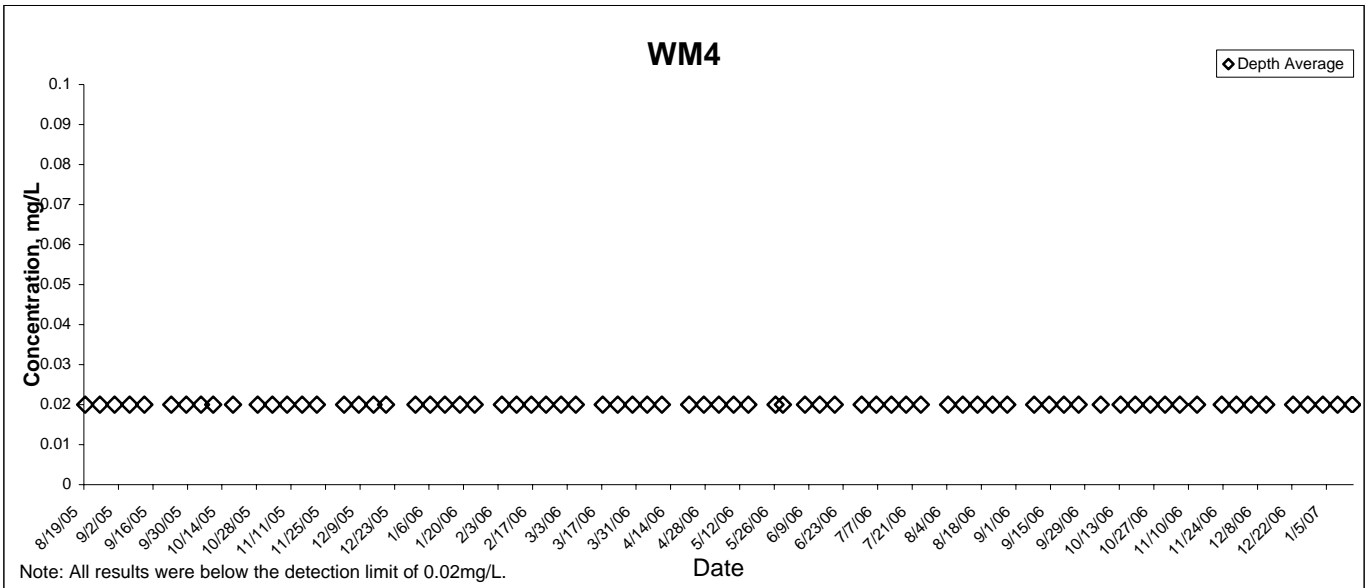
Total Nitrogen



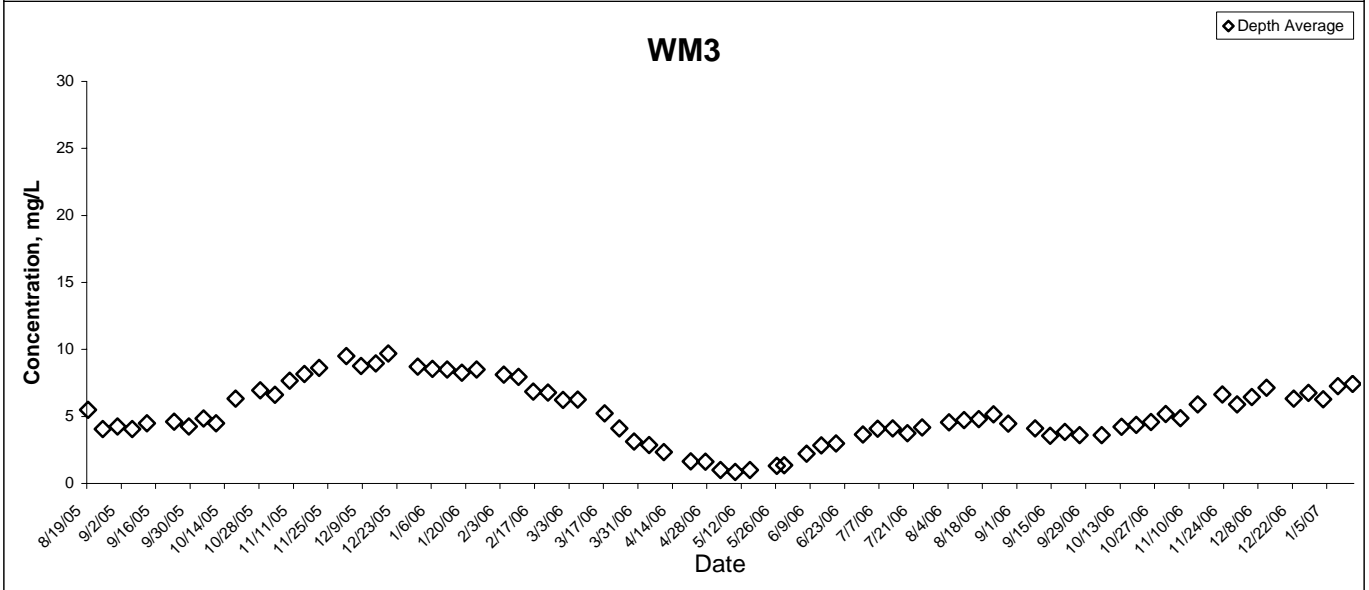
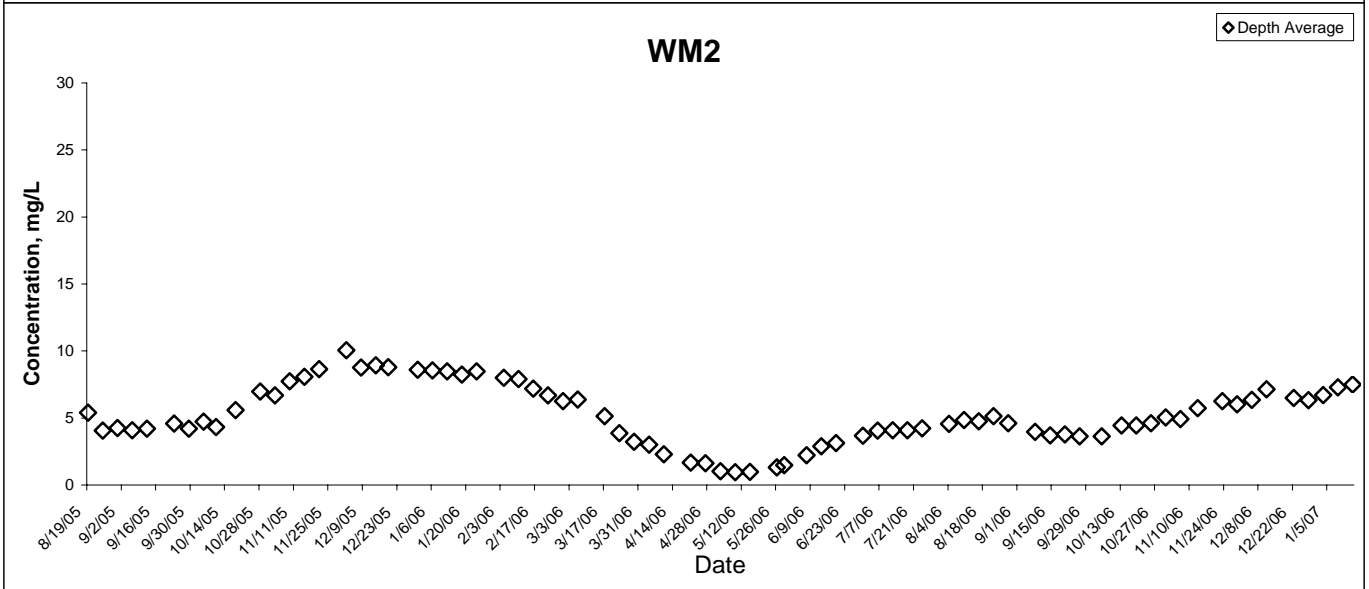
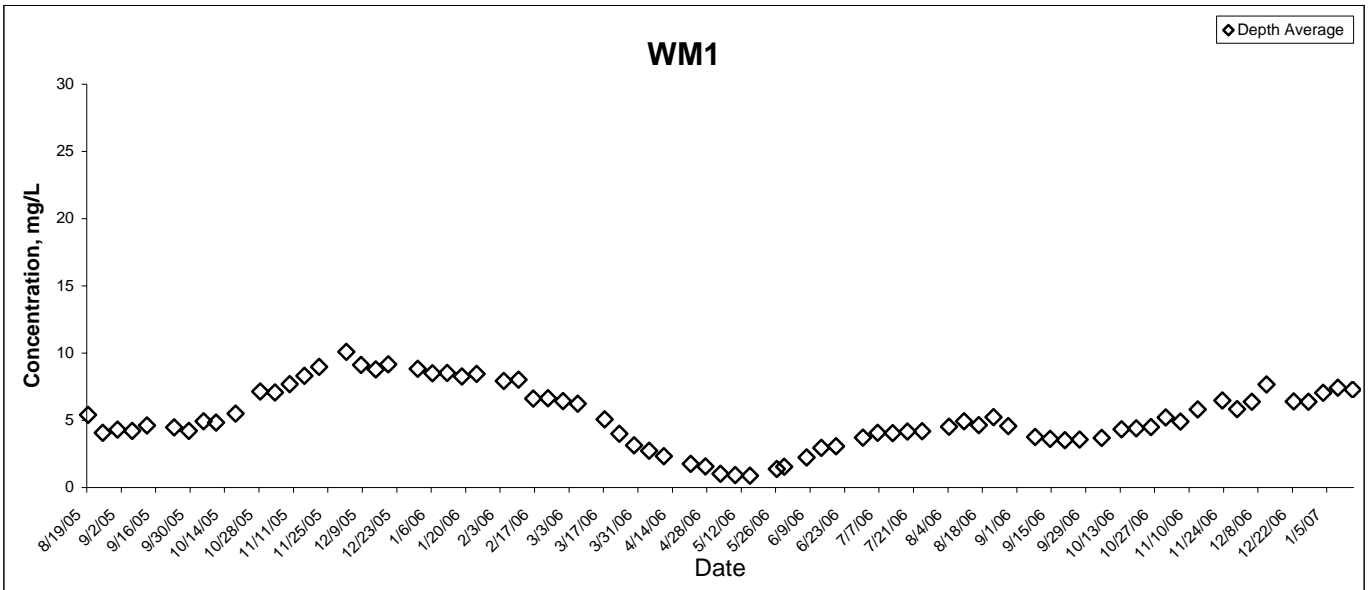
Total Phosphorous



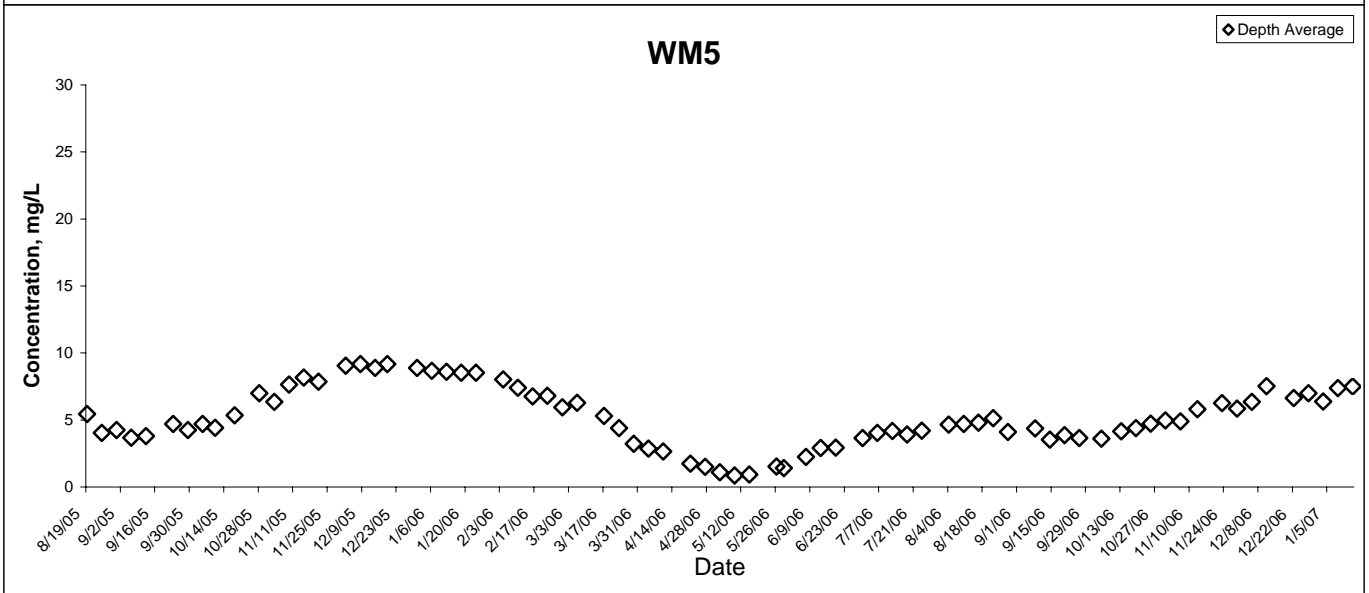
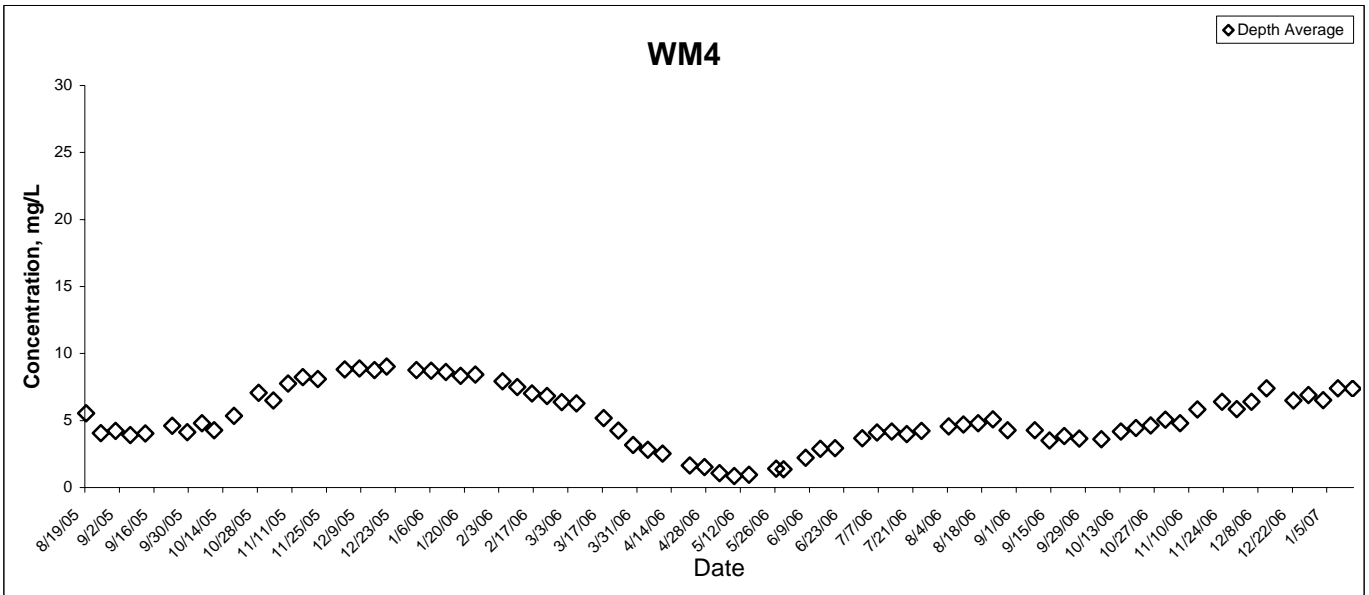
Total Phosphorous



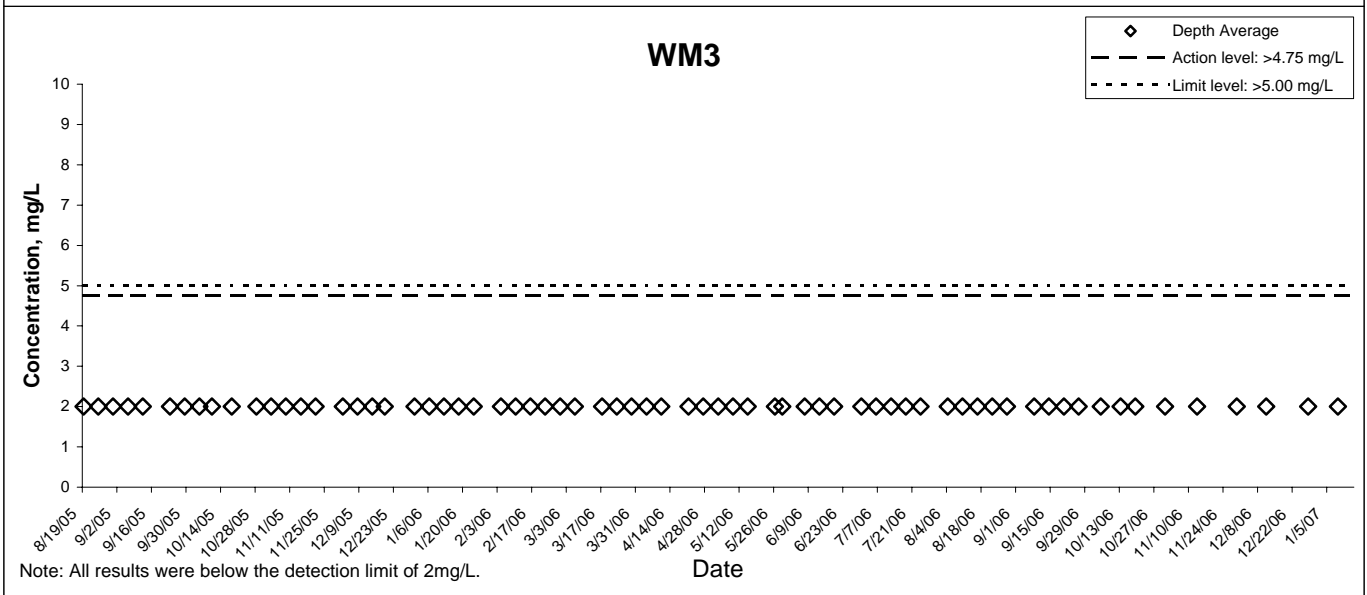
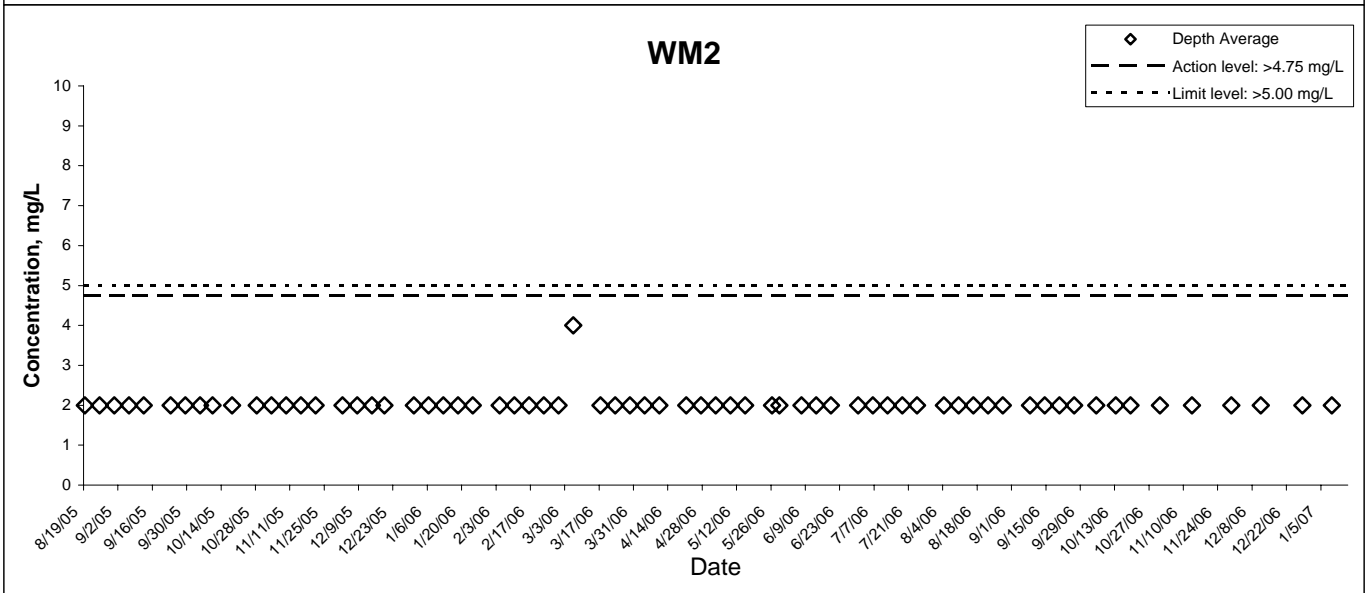
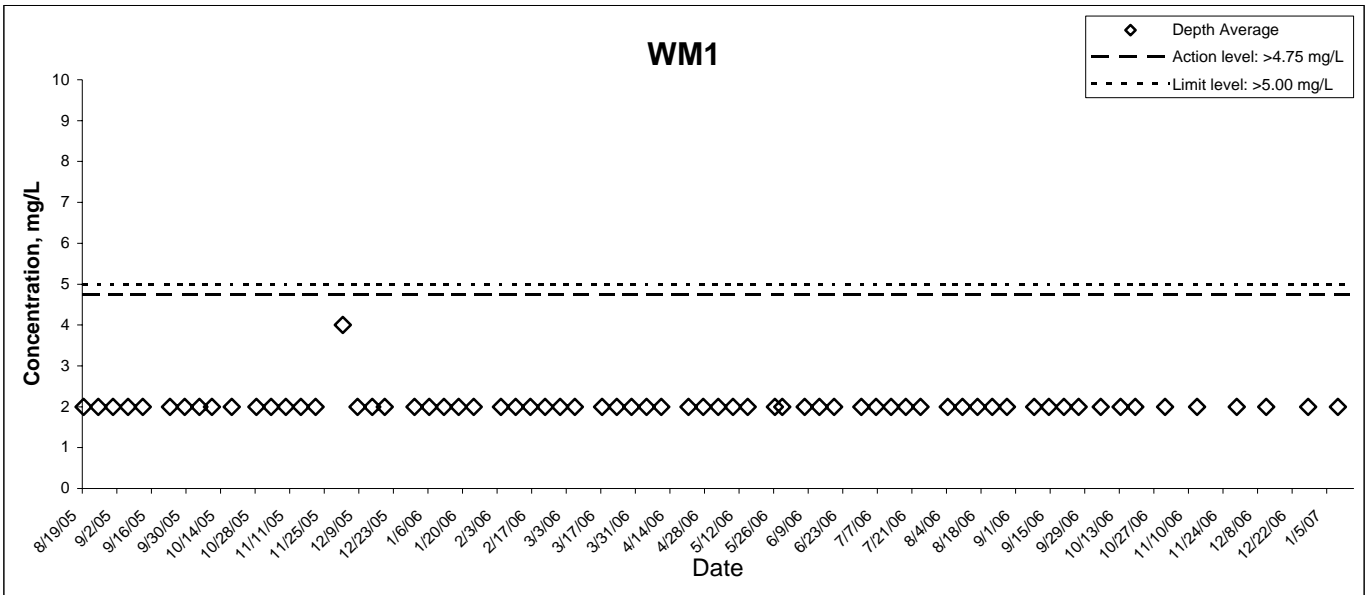
Silica



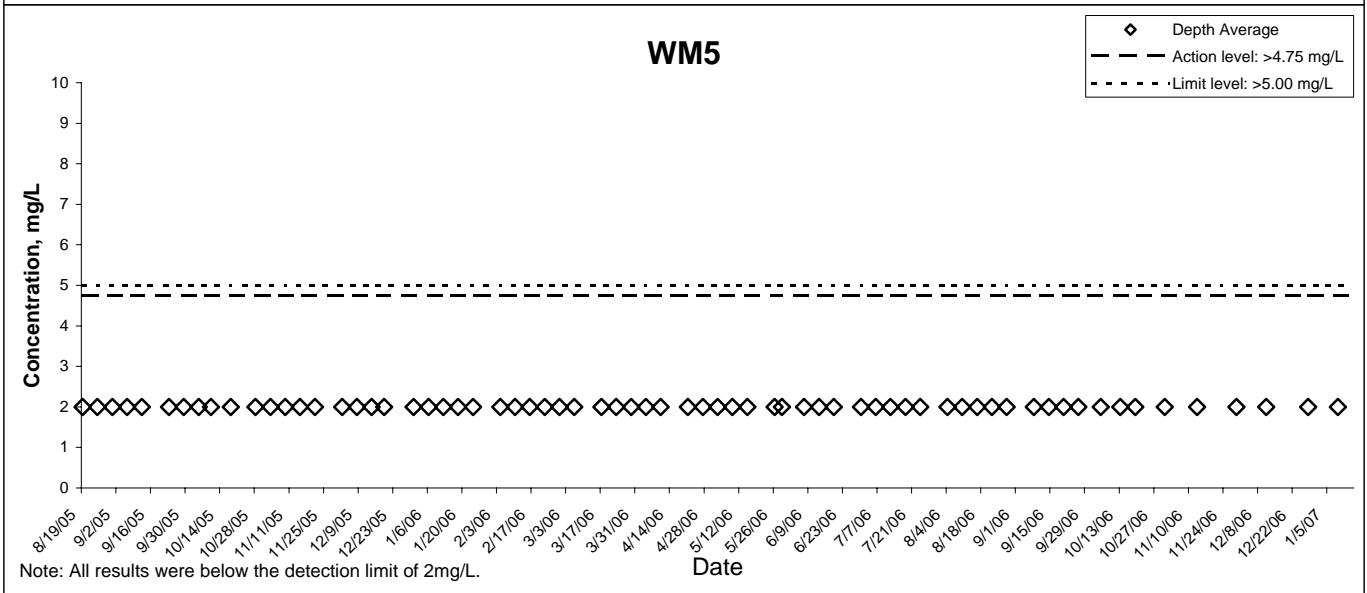
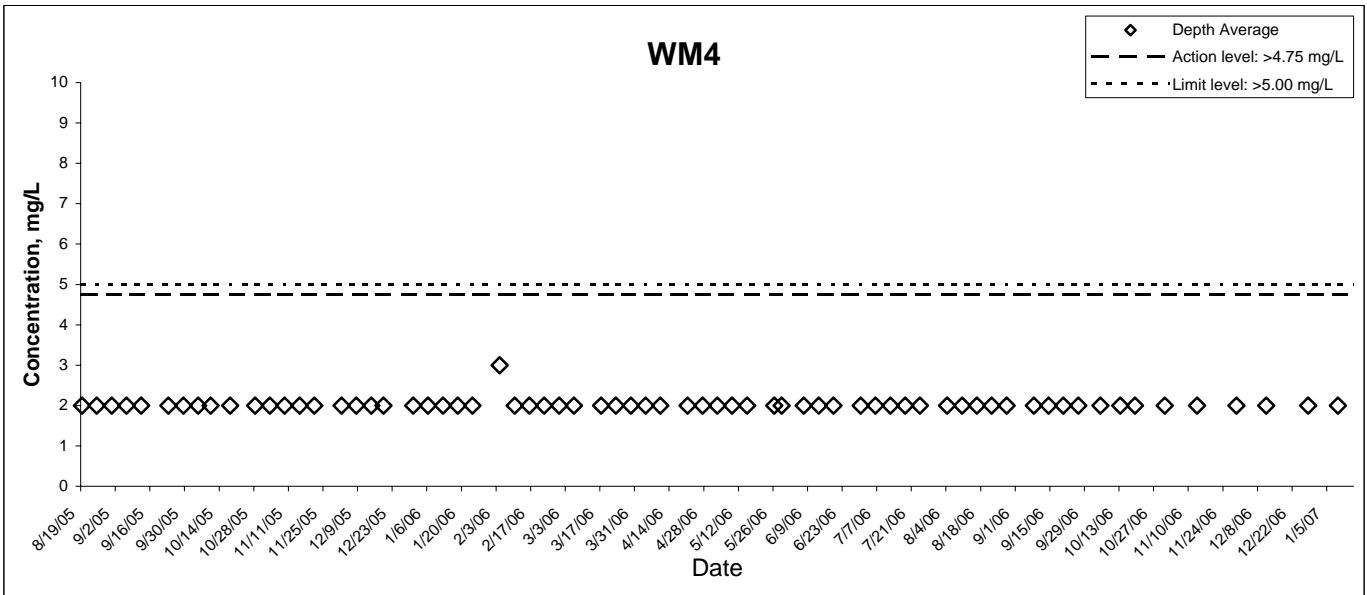
Silica



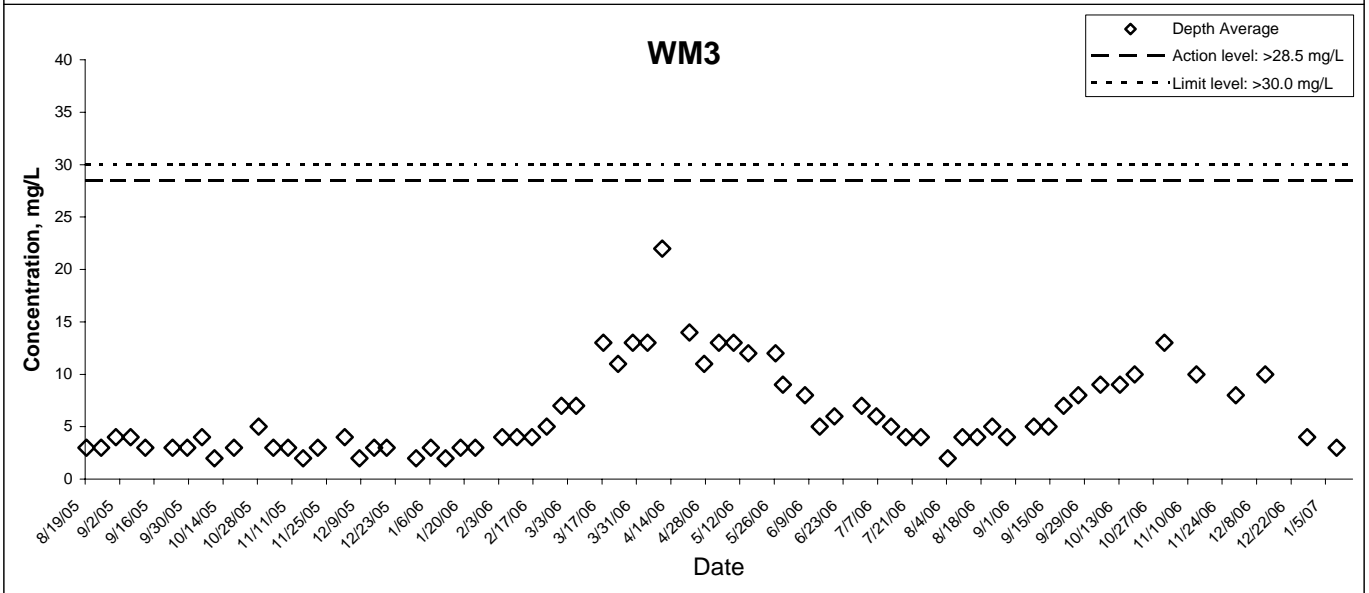
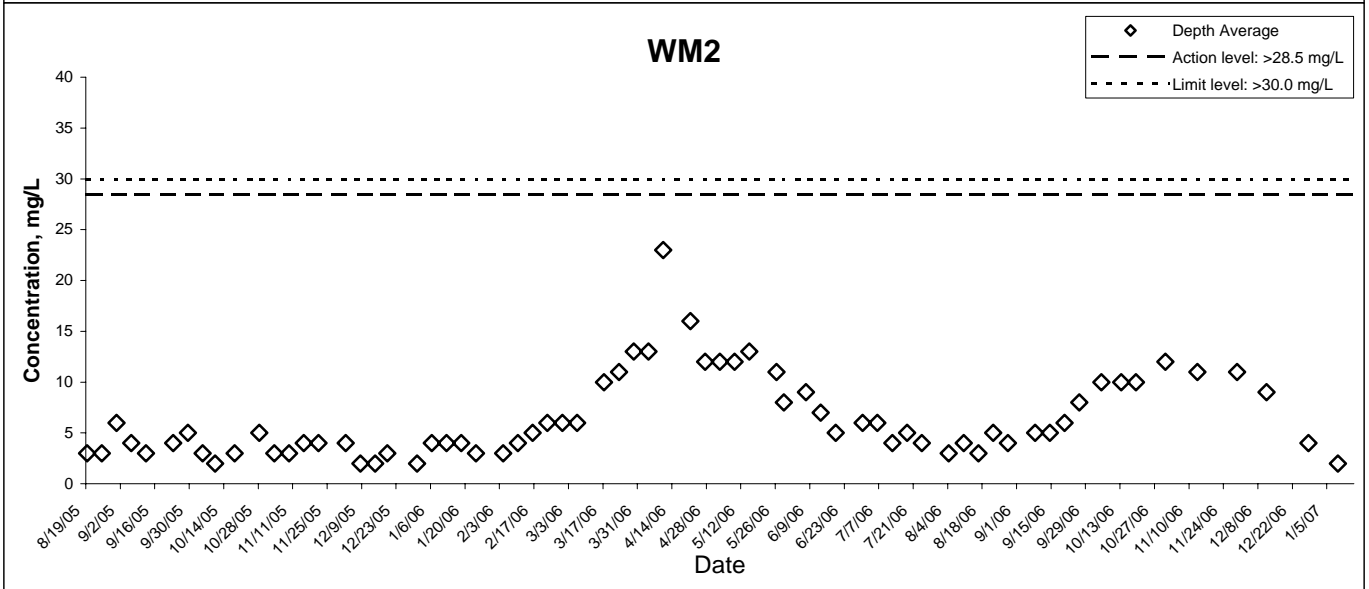
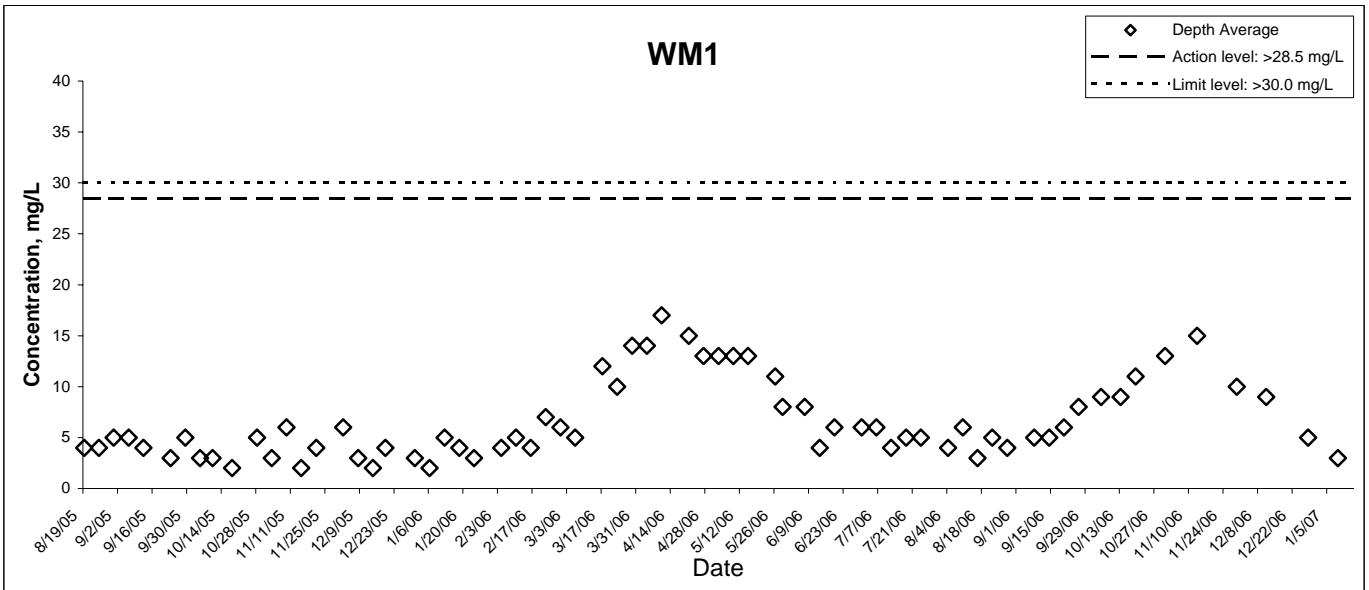
5-day BOD



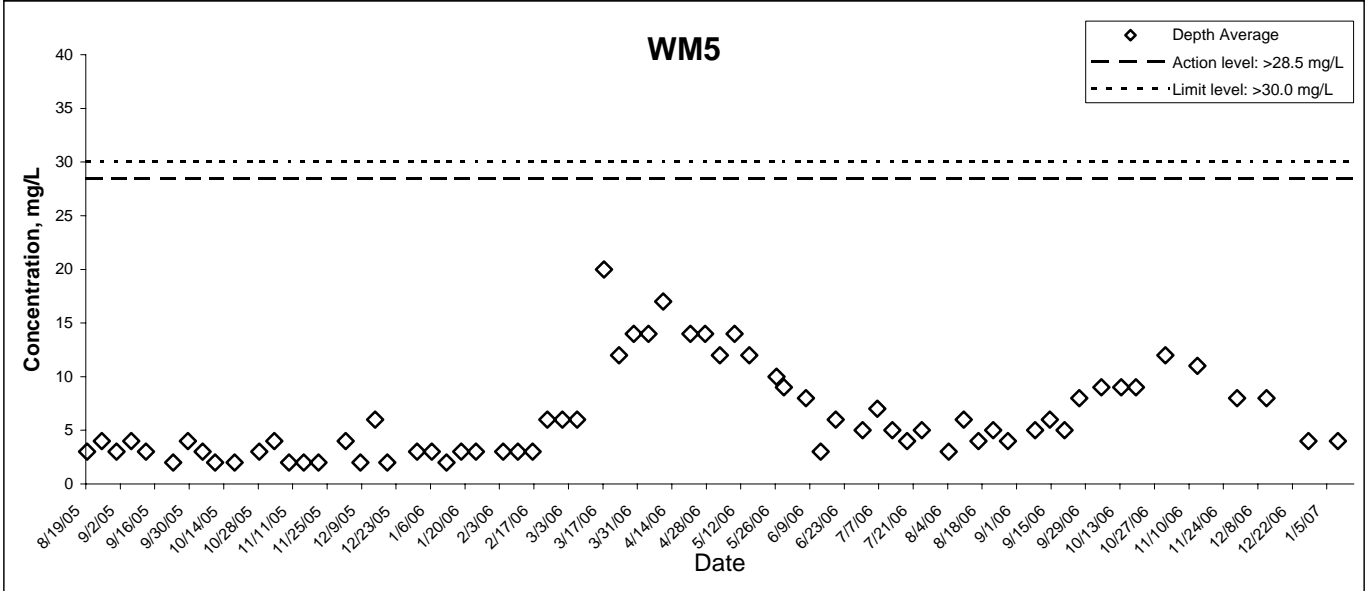
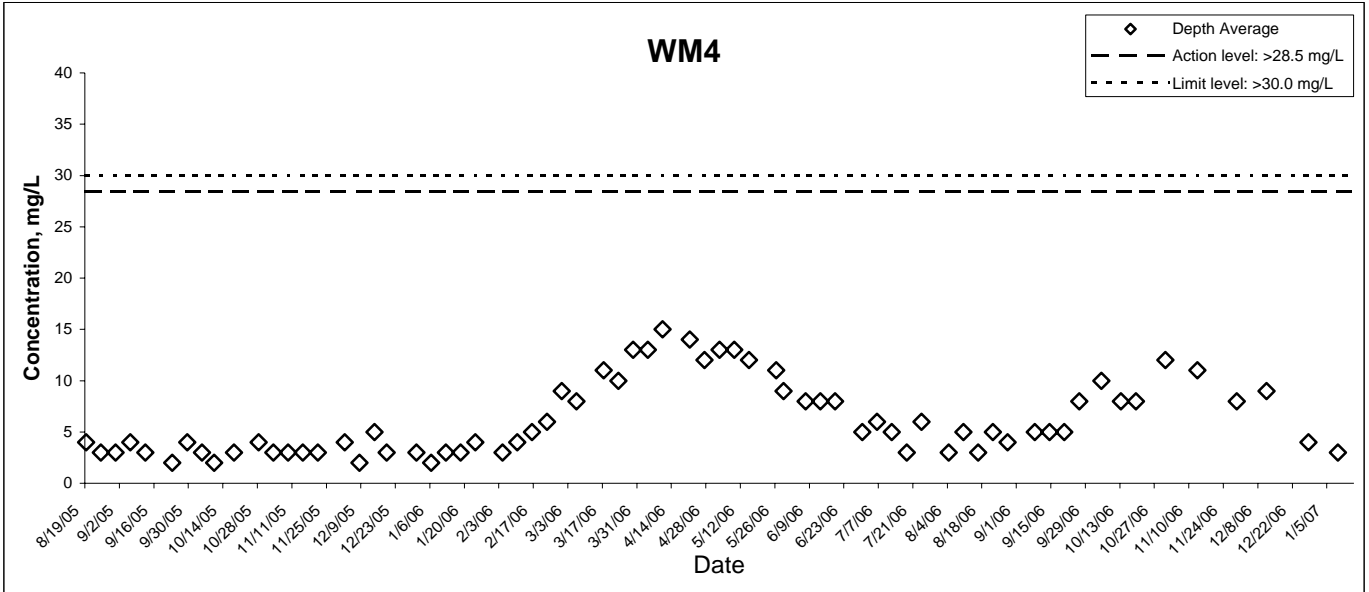
5-day BOD



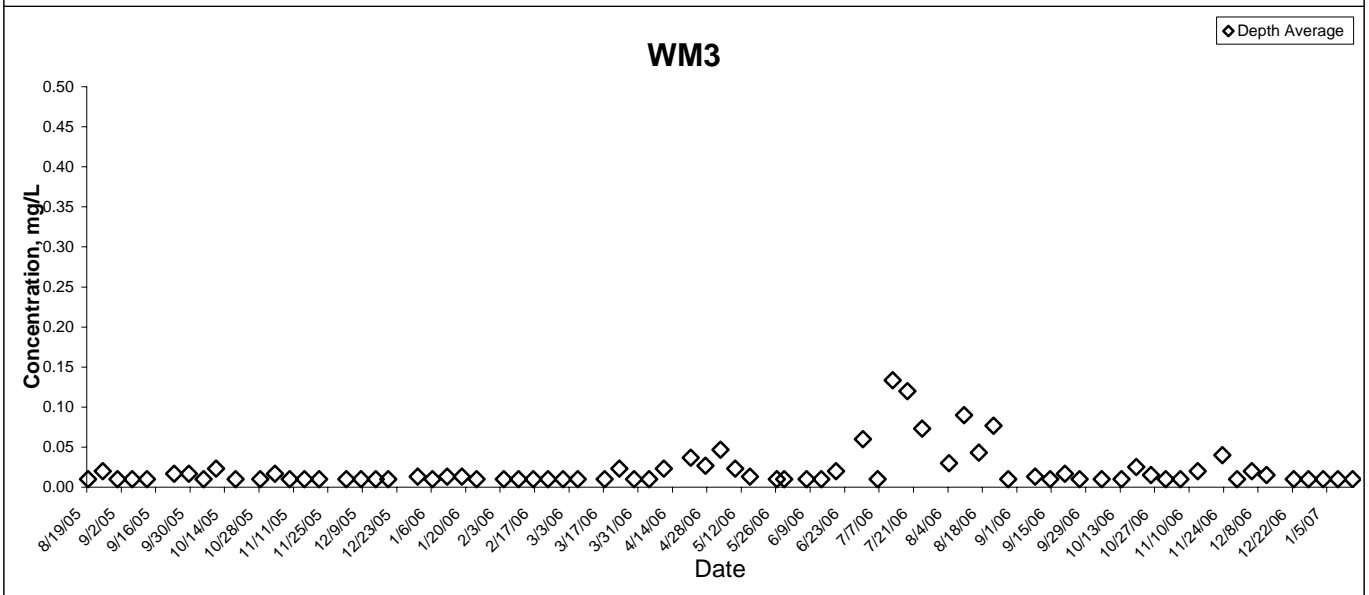
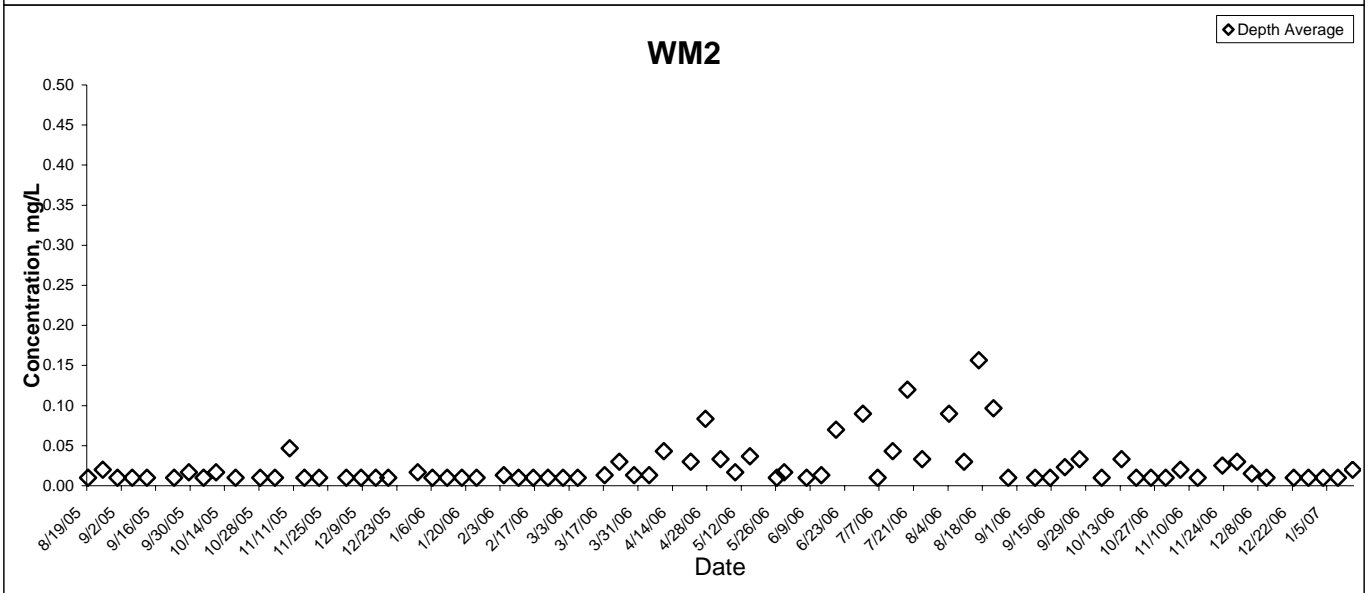
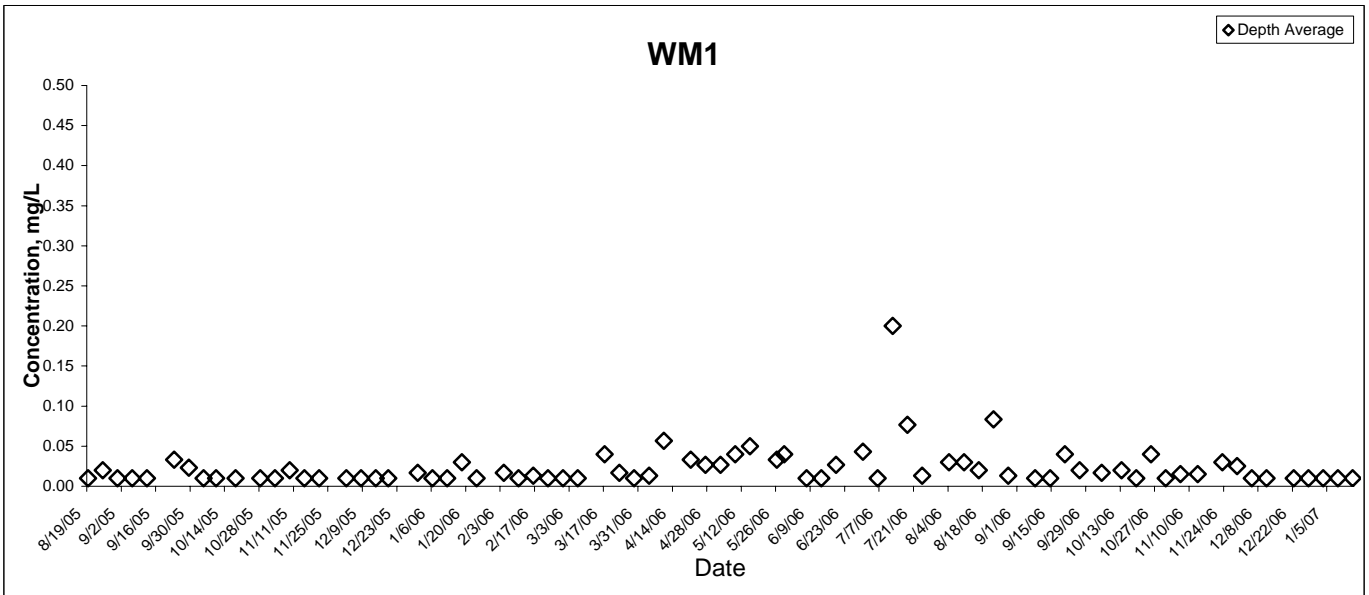
Chemical Oxygen Demand



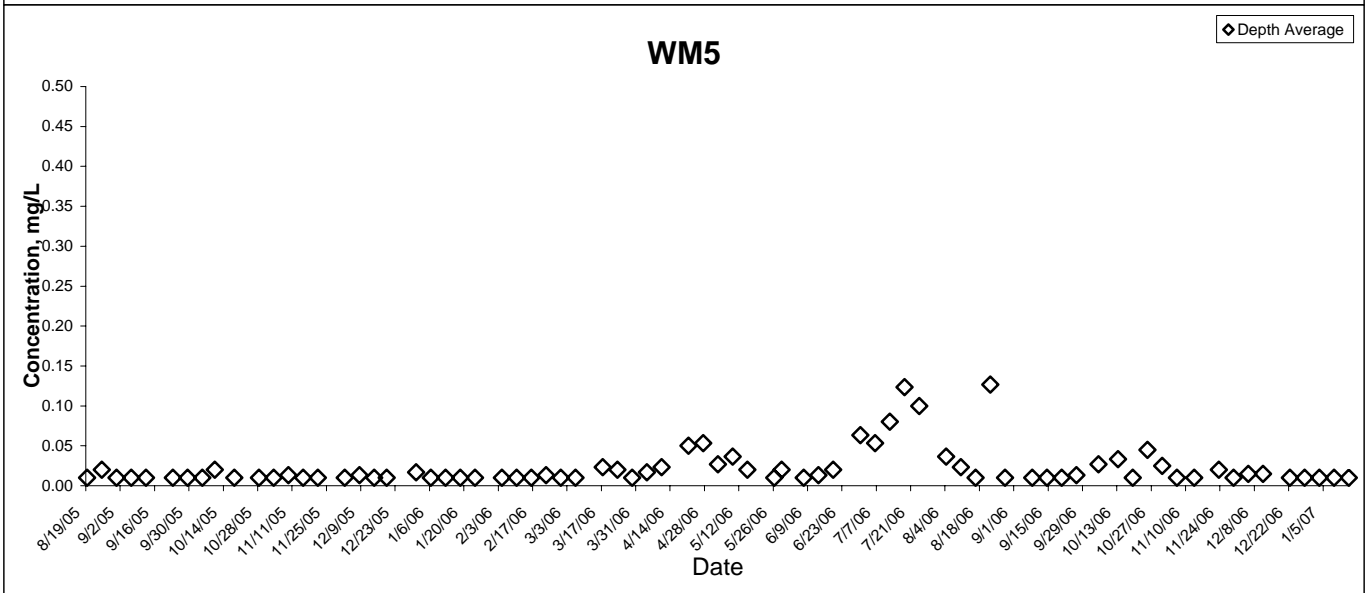
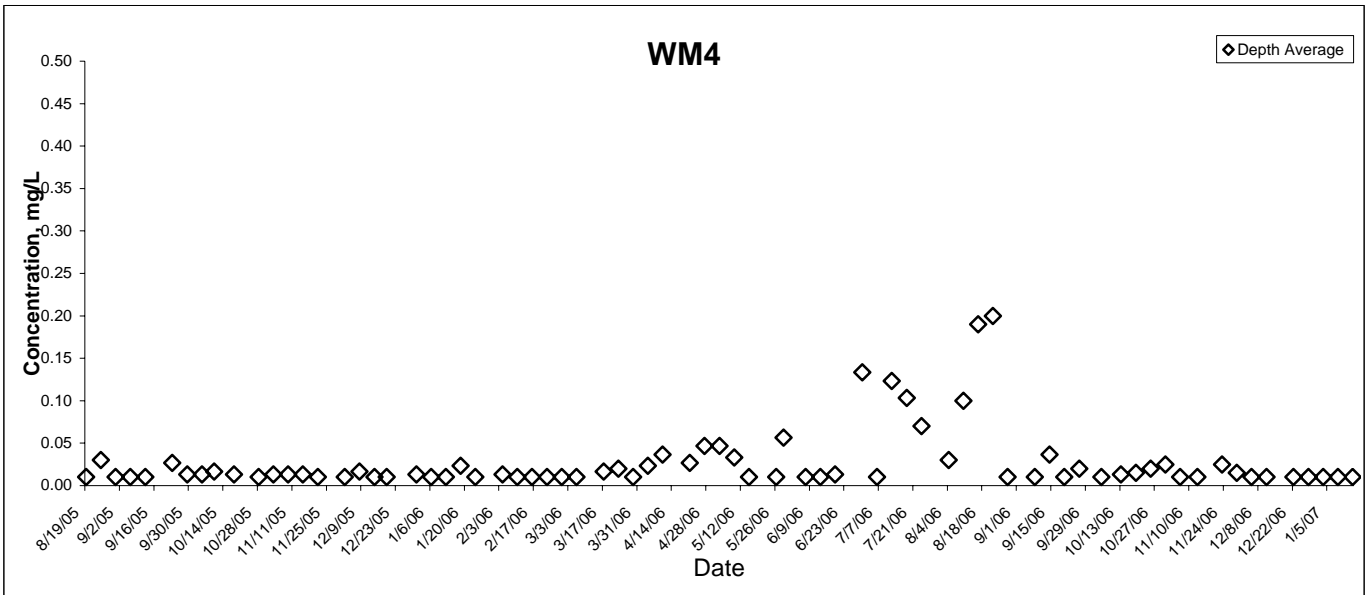
Chemical Oxygen Demand



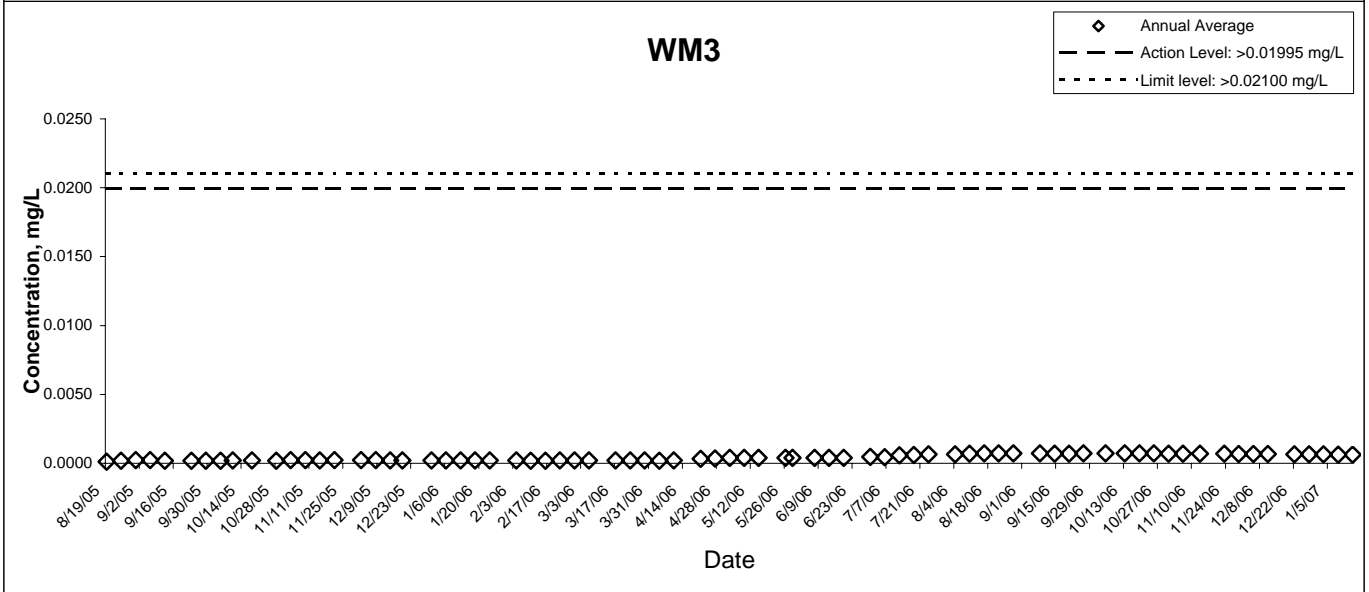
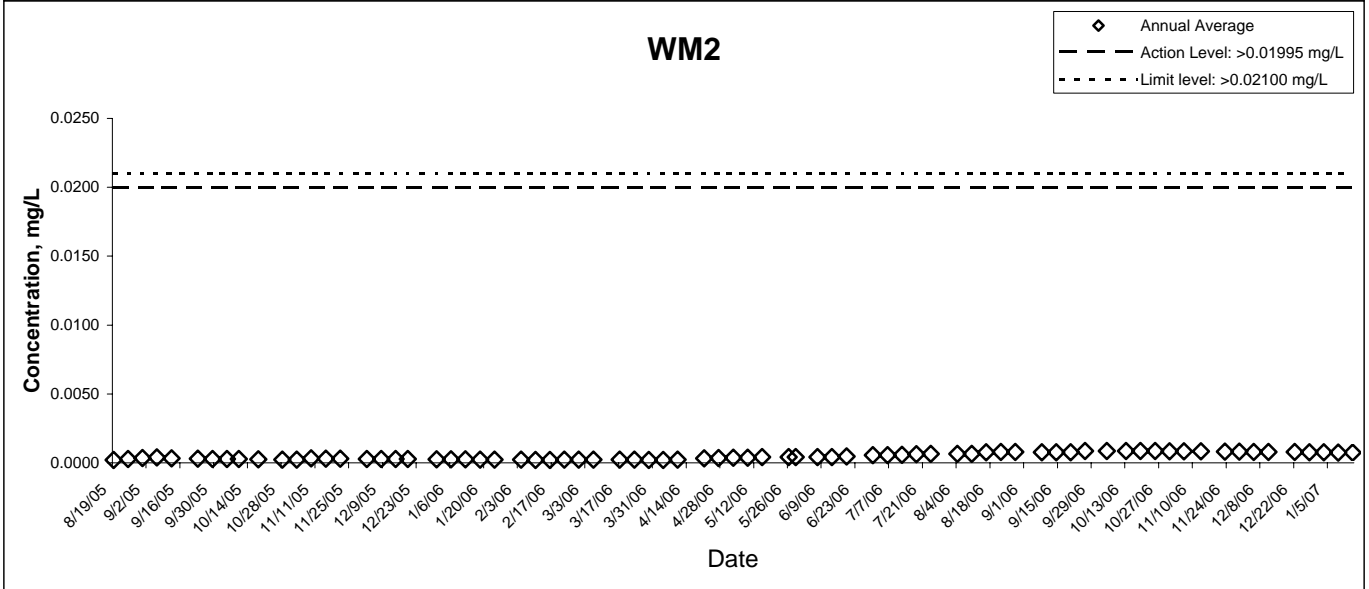
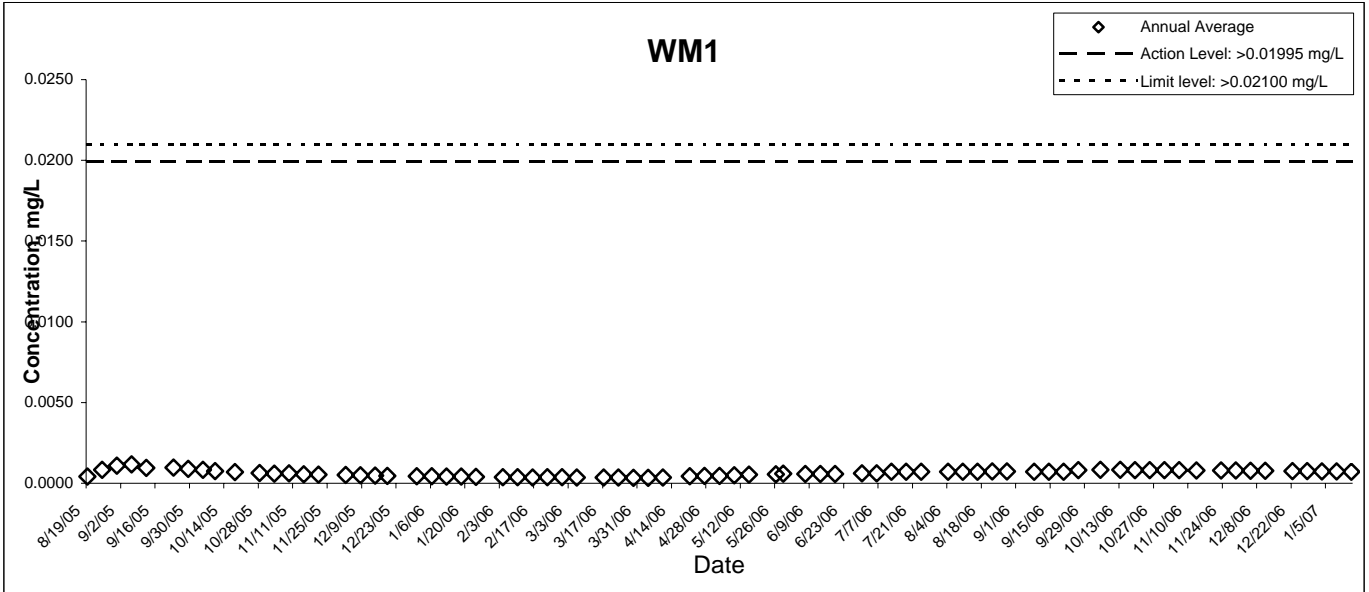
Ammonia Nitrogen



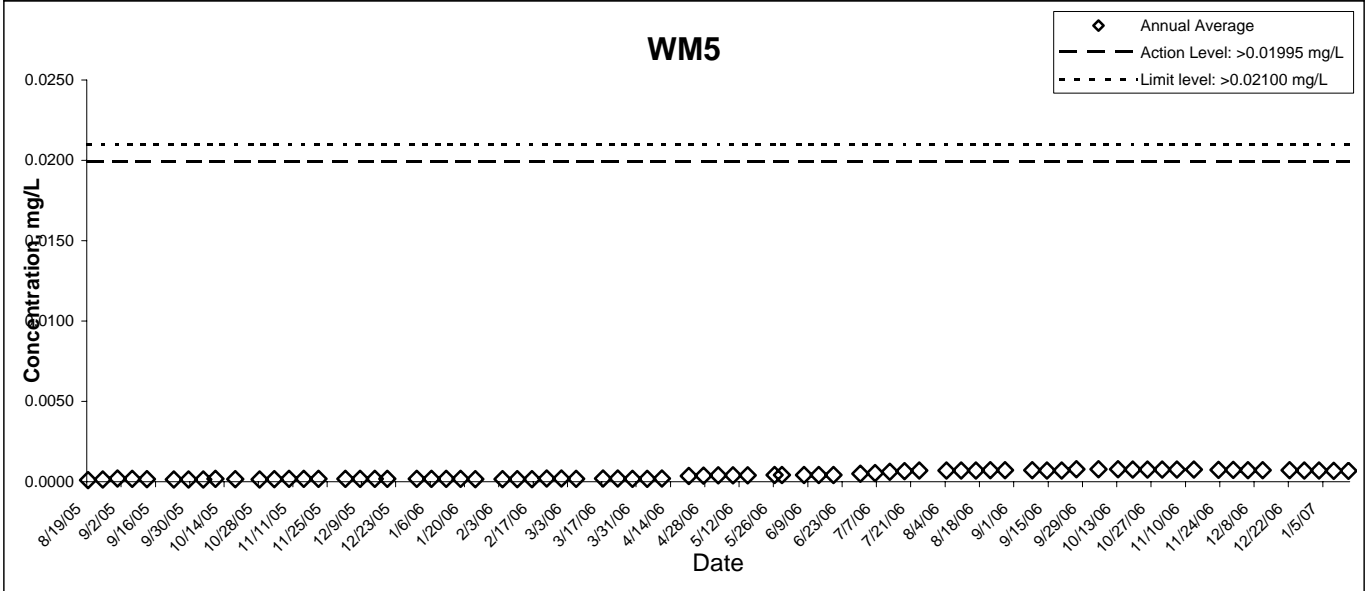
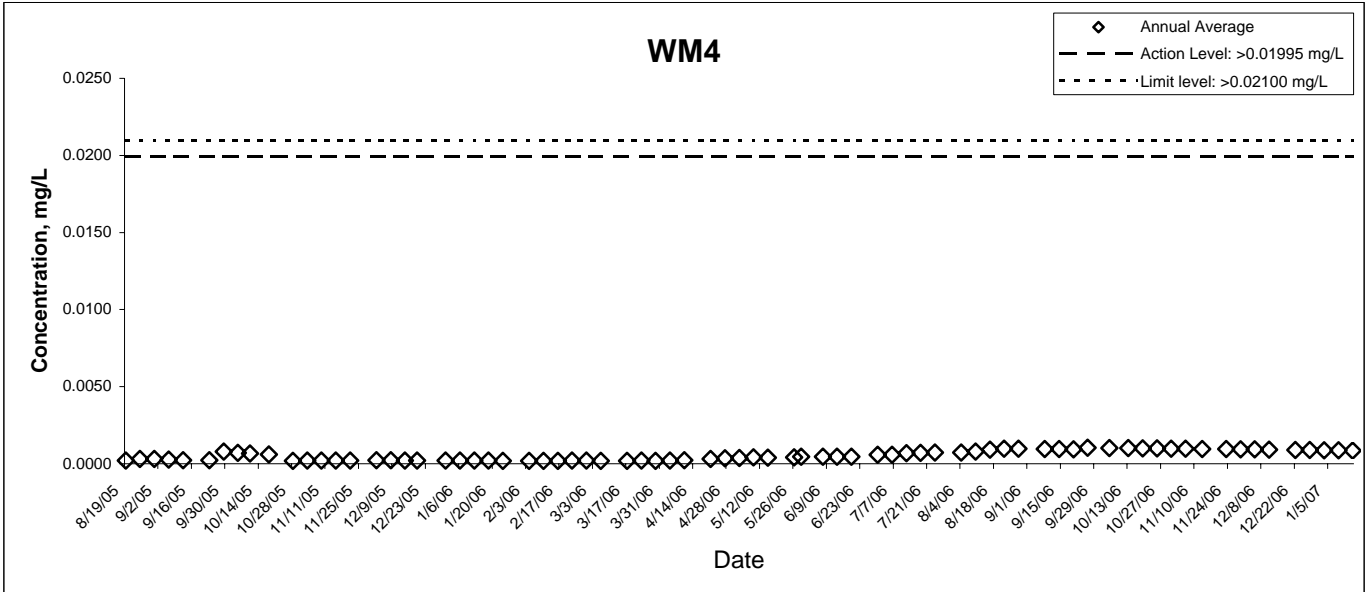
Ammonia Nitrogen



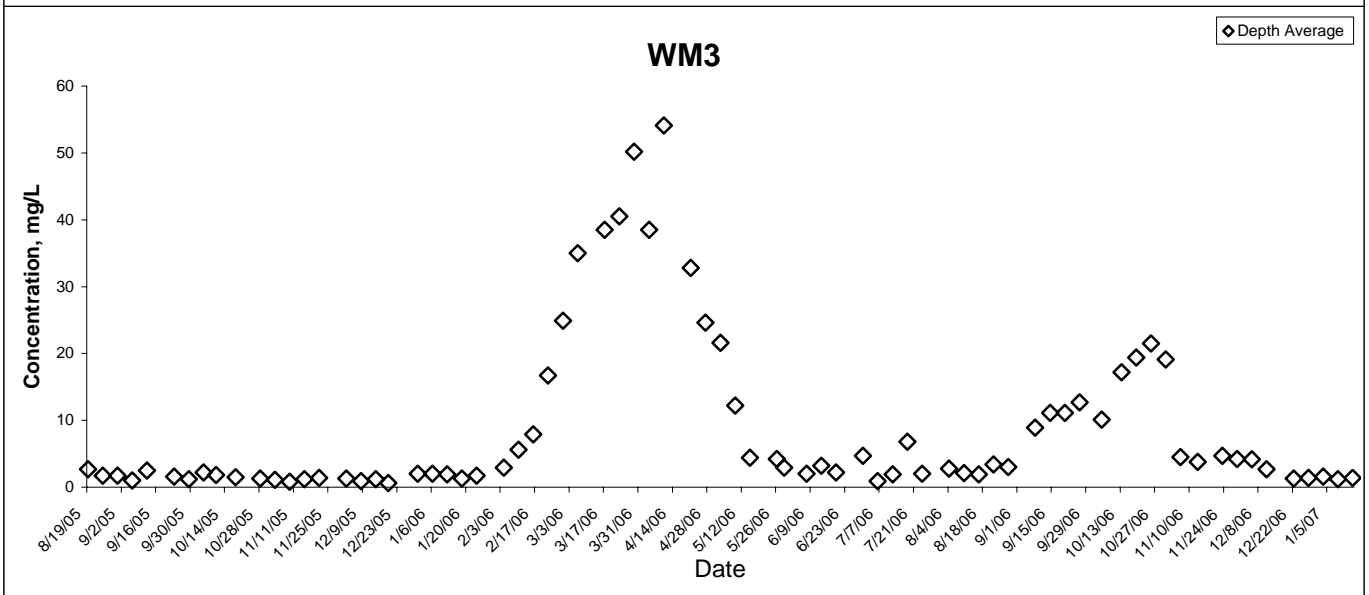
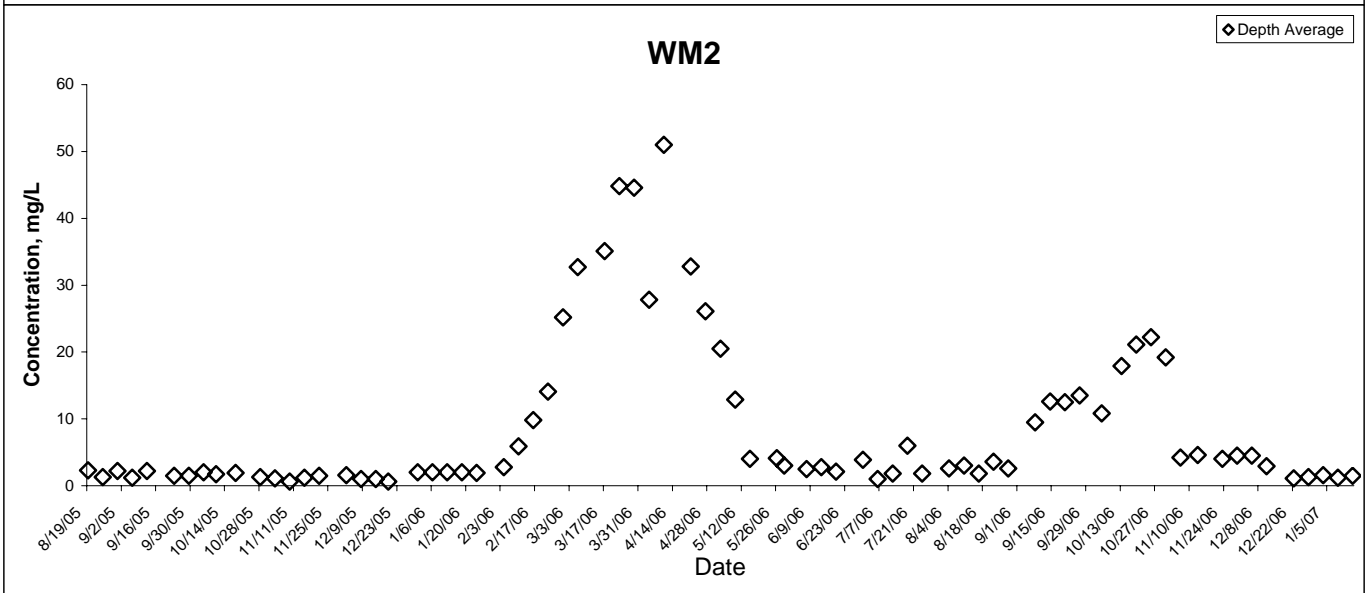
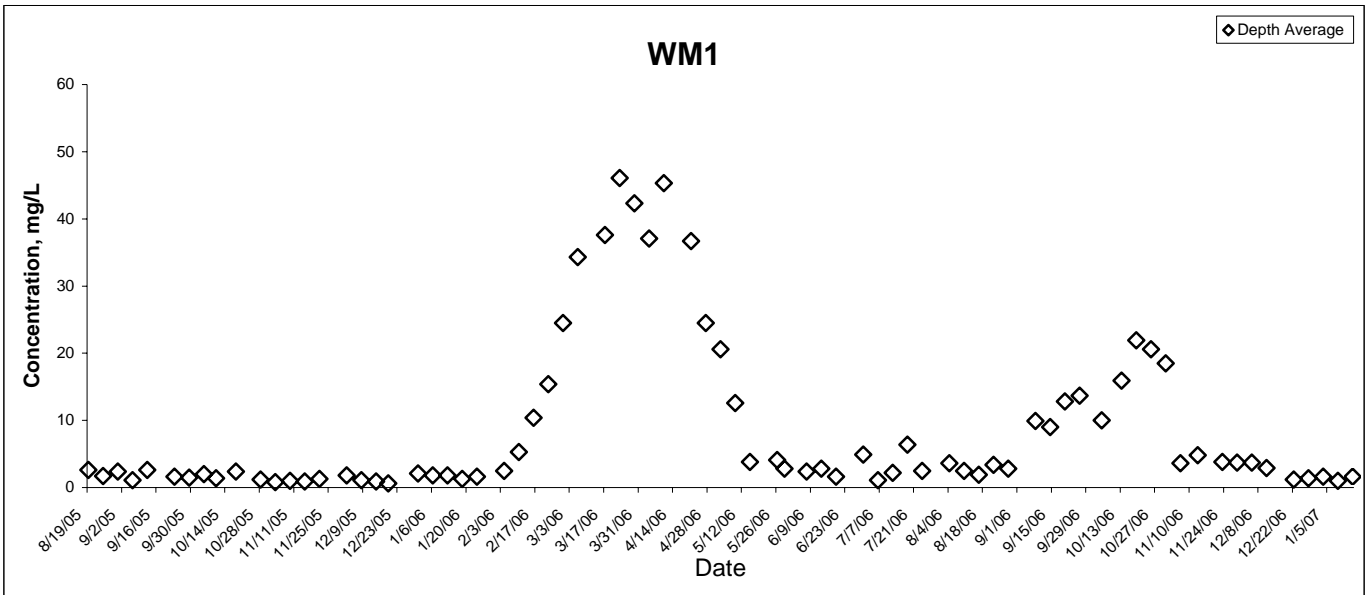
Unionised Nitrogen (Annual Average)



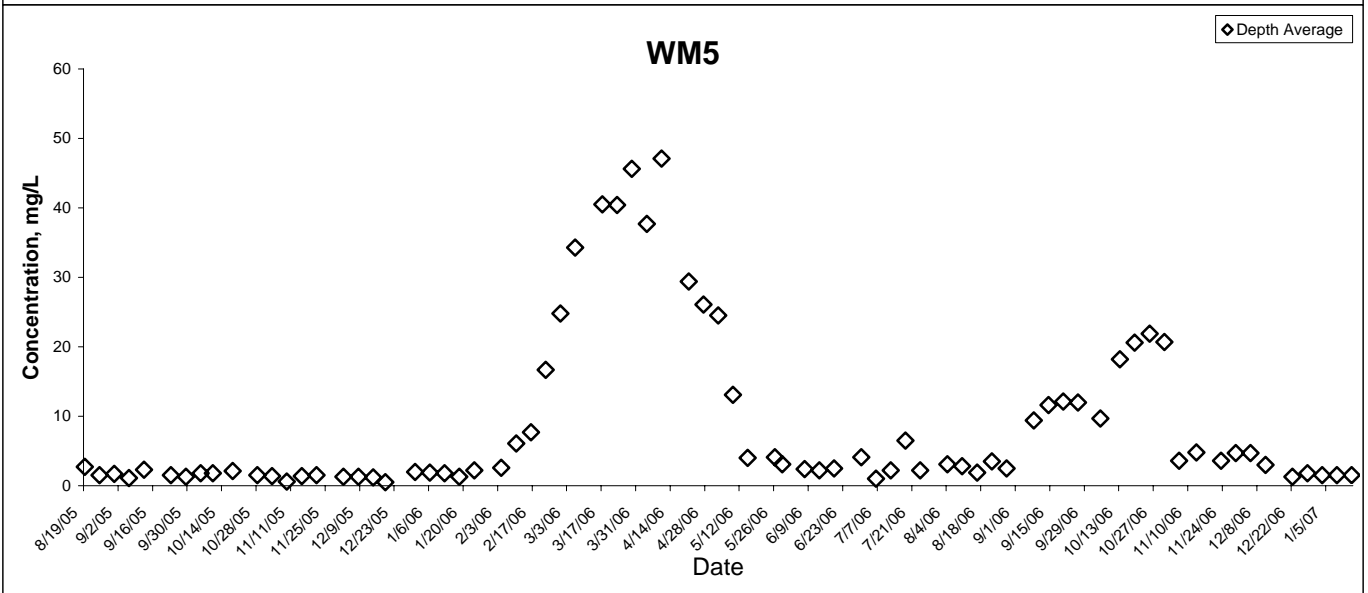
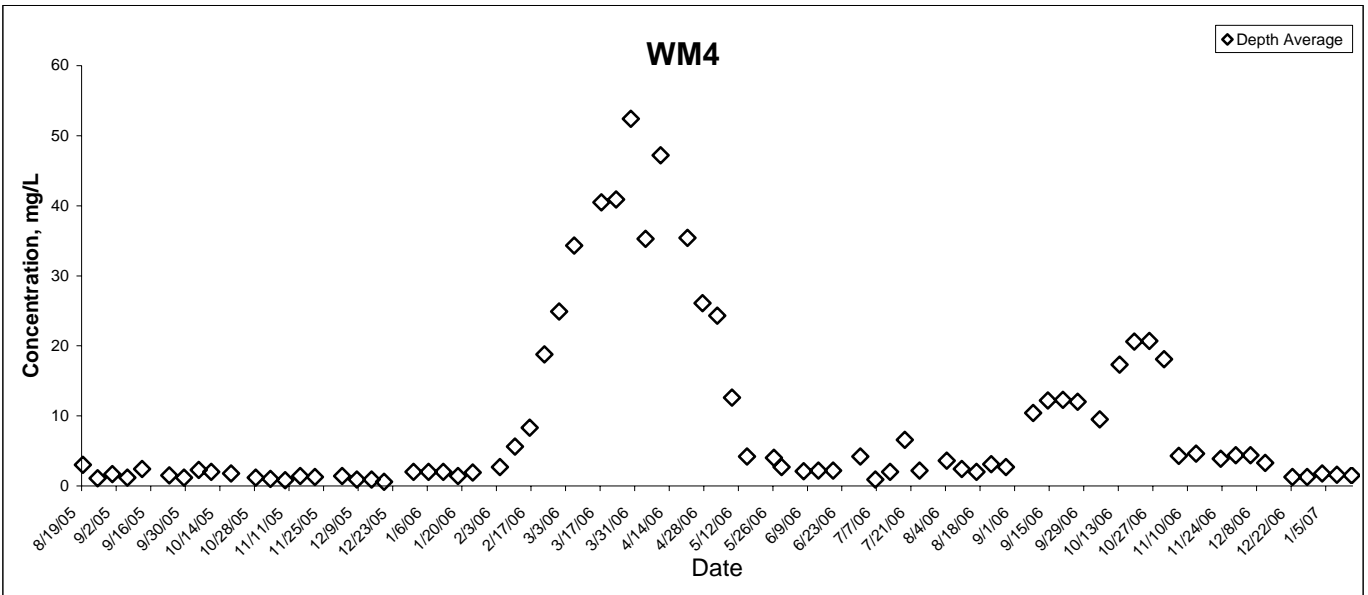
Unionised Nitrogen (Annual Average)



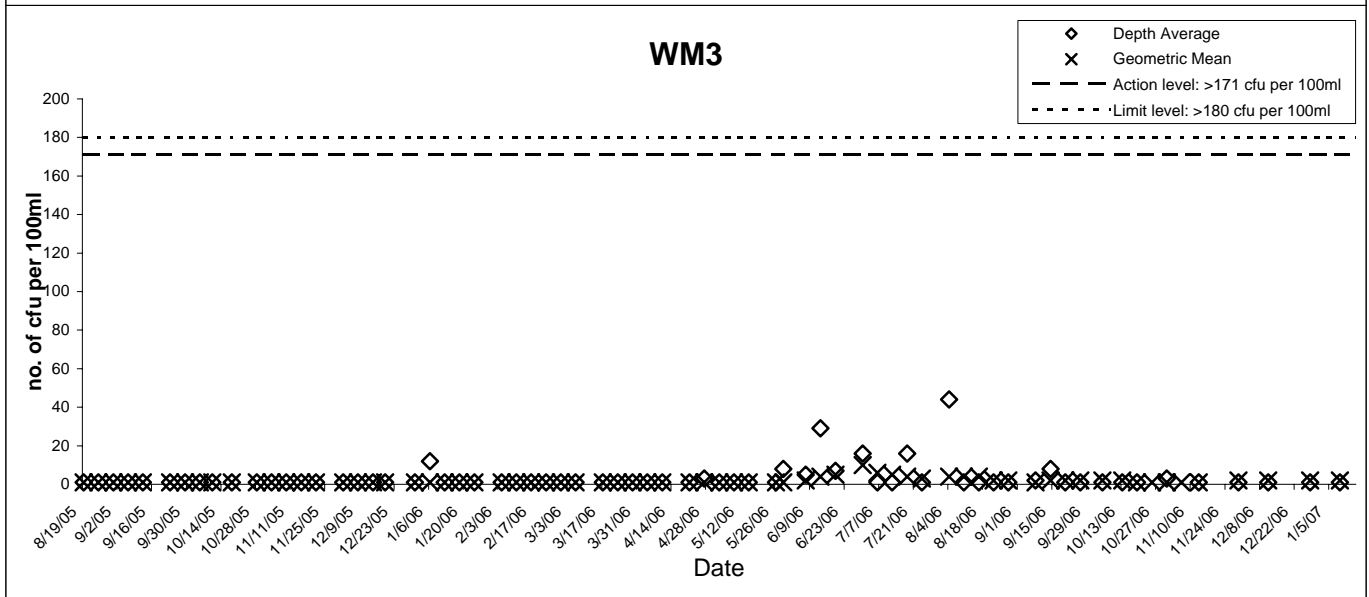
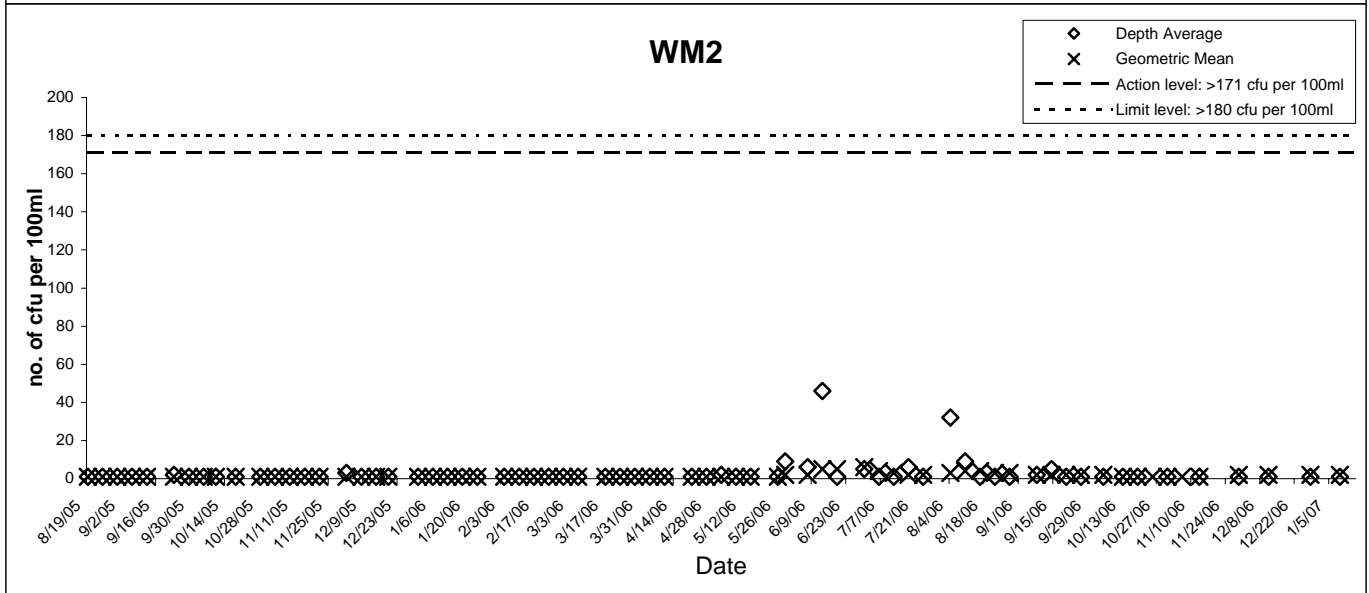
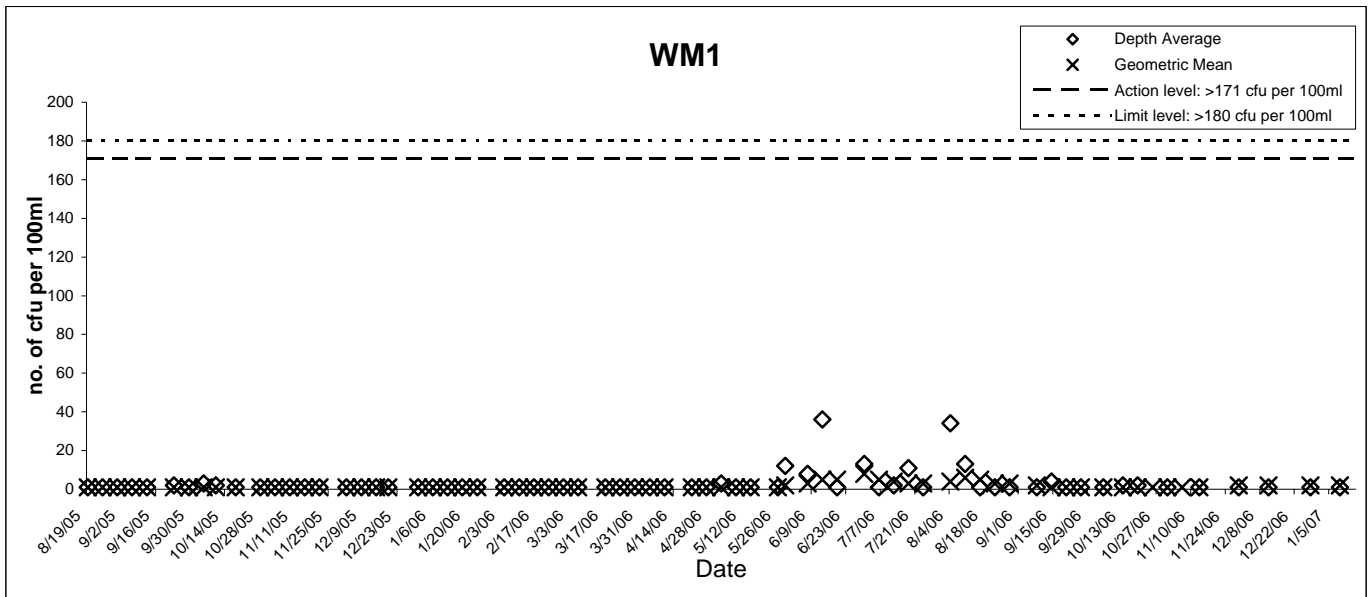
Chlorophyll-a



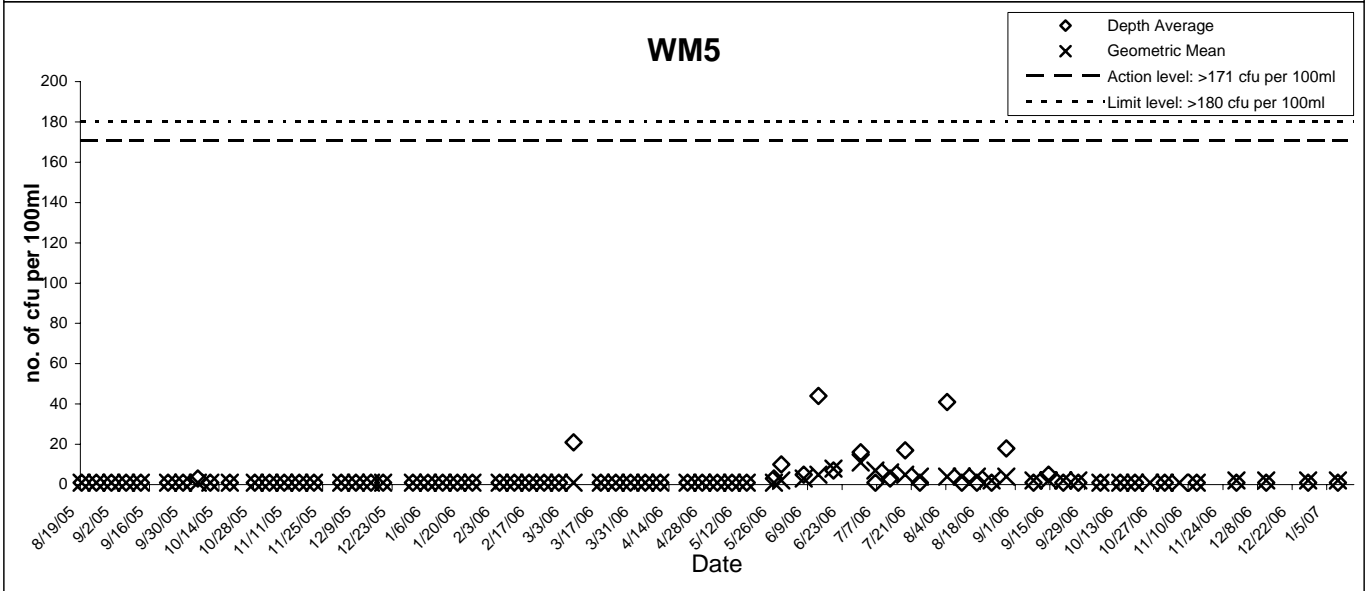
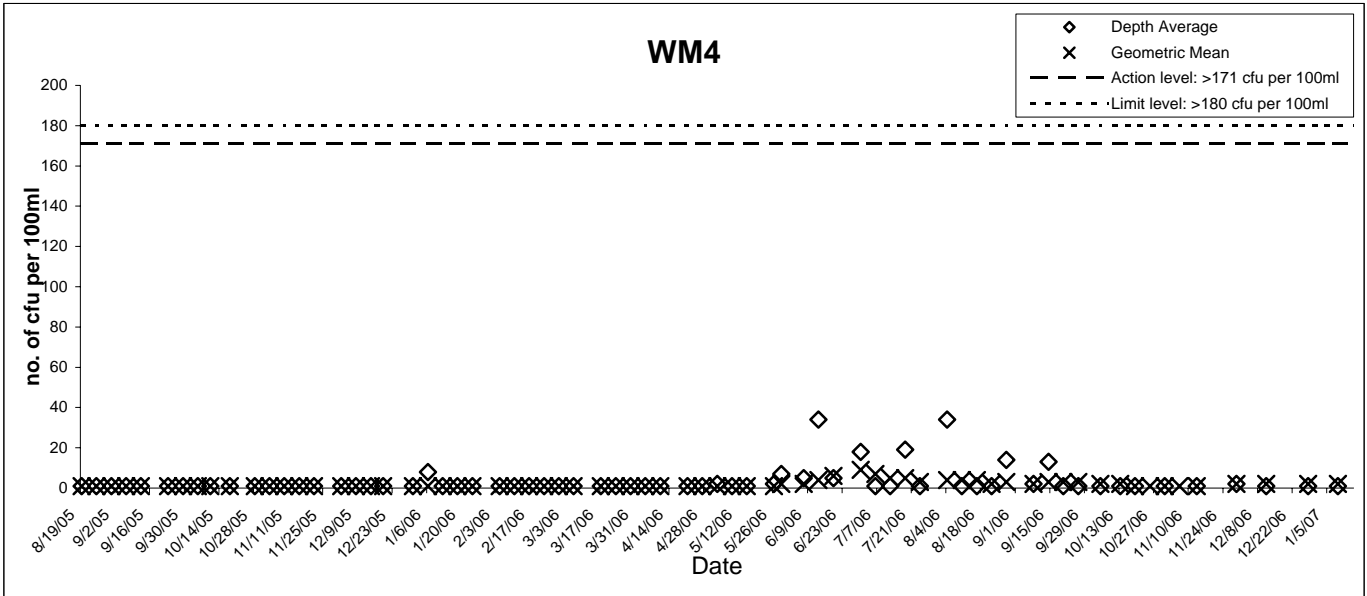
Chlorophyll-a



E.coli



E.coli





CERTIFICATE OF ANALYSIS

<i>Client</i> : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD	<i>Laboratory</i> : ALS Technichem (HK) Pty Ltd	<i>Page</i> : 1 of 4
<i>Contact</i> : MR EDDIE YANG	<i>Contact</i> : Alice Wong	<i>Work Order</i> : HK0608177
<i>Address</i> : 11/F, TOWER 2, GRAND CENTRAL PLAZA, 13B SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T. HONG KONG	<i>Address</i> : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	
<i>E-mail</i> : eddie.yang@maunsell.aecom.com	<i>E-mail</i> : alice.wong@alsenviro.com	
<i>Telephone</i> : +852 3105 8525	<i>Telephone</i> : +852 2610 1044	
<i>Facsimile</i> : +852 2891 0305	<i>Facsimile</i> : +852 2610 2021	
<i>Project</i> : 60016794	<i>Quote number</i> : ---	<i>Date received</i> : 22 Dec 2006
<i>Order number</i> : ---		<i>Date of issue</i> : 3 Jan 2007
<i>C-O-C number</i> : ---		<i>No. of samples</i> - Received : 10
<i>Site</i> : WRC		- Analysed : 10

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics

ALS Laboratory Group
Trading Name: ALS Technichem (HK) Pty Ltd
11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com
A Campbell Brothers Limited Company

Page Number : 2 of 4
Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD
Work Order : HK0608177



Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0608177 supersedes any previous reports with this reference. The completion date of analysis is 30 Dec 2006. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0608177 :
 Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.
 In marine and freshwater samples, chlorophyll b will cause some interference if present.
 Project Name: EM&A for WRC at Penny's Bay.
 Ten water samples were received in a chilled condition.
 Water sample(s) analysed and reported on an as received basis.



Analytical Results

				Client Sample ID : WM 1S	WM 1B	WM 2S	WM 2B	WM 3S
				Laboratory Sample ID : HK0608177-001	HK0608177-002	HK0608177-003	HK0608177-004	HK0608177-005
				Sample Date / Time : [22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	3	2	3	2	3
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	6.51	6.29	6.48	6.50	6.08
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.3	0.2	0.8
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.3	0.2	0.8
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	1.1	1.2	1.0	1.1	1.4



Analytical Results

				Client Sample ID : WM 3B	WM 4S	WM 4B	WM 5S	WM 5B
				Laboratory Sample ID : HK0608177-006	HK0608177-007	HK0608177-008	HK0608177-009	HK0608177-010
				Sample Date / Time : [22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]	[22 Dec 2006]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	3	2	2	2	2
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	6.88	6.30	6.68	6.73	6.52
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.3	0.2	0.3	0.2	<0.1
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.2	0.3	0.2	<0.1
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	1.2	1.2	1.4	1.5	1.1



CERTIFICATE OF ANALYSIS

Client	: MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 6
Contact	: MS LEMON LAM	Contact	: Alice Wong	Work Order	: HK0608335
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: lemon.lam@maunsell.aecom.com	E-mail	: alice.wong@alsenviro.com	Date received	: 29 Dec 2006
Telephone	: +852 2893 1551	Telephone	: +852 2610 1044	Date of issue	: 10 Jan 2007
Facsimile	: +852 2891 0305	Facsimile	: +852 2610 2021	No. of samples	- Received : 10
Project	: 60016794	Quote number	: ---	- Analysed	: 10
Order number	: ---				
C-O-C number	: ---				
Site	: WRC				

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<u>Signatory</u>	<u>Position</u>	<u>Authorised results for-</u>
Fung Lim Chee, Richard	General Manager	Inorganics
Leung Sai Ho, Ivan	Supervisor	Microbiology

ALS Laboratory Group
Trading Name: ALS Technichem (HK) Pty Ltd
11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com
A Clarendon Brothers Limited Company

Page Number : 2 of 6
Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD
Work Order : HK0608335



Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0608335 supersedes any previous reports with this reference. The completion date of analysis is 29 Dec 2006. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0608335 :

- Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.
- In marine and freshwater samples, chlorophyll b will cause some interference if present.
- Project Name: EM&A for WRC at Penny's Bay.
- Ten water samples were received in a chilled condition.
- Water sample(s) analysed and reported on an as received basis.
- Samples were arrived in the laboratory at 12:30. Samples, in 100mL glass bottle labelled sterile, with addition of sodium thiosulfate solution. Testing period : 29/12/2006 (16:00) - 31/12/2006.



Analytical Results

				Client Sample ID : WM 1S	WM 1B	WM 2S	WM 2B	WM 3S
				Laboratory Sample ID : HK0608335-001	HK0608335-002	HK0608335-003	HK0608335-004	HK0608335-005
				Sample Date / Time : [28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	6.38	6.39	6.18	6.50	6.70
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.2	0.2	0.2
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.2	0.2	0.2
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	1.4	1.3	1.2	1.4	1.3
EP026: Chemical Oxygen Demand	---	2	mg/L	5	5	4	4	4
EP030: Biochemical Oxygen Demand	---	2	mg/L	<2	<2	<2	<2	<2
EM: Microbiological Testing								
EM002: E. coli	---	1	CFU/100 mL	<1	<1	<1	<1	<1



Analytical Results

				Client Sample ID : WM 3B	WM 4S	WM 4B	WM 5S	WM 5B
				Laboratory Sample ID : HK0608335-006	HK0608335-007	HK0608335-008	HK0608335-009	HK0608335-010
				Sample Date / Time : [28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]	[28 Dec 2006]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	6.82	6.71	7.09	6.88	7.12
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.2	0.2	0.2
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.2	0.2	0.2
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	1.4	1.4	1.2	2.2	1.3
EP026: Chemical Oxygen Demand	---	2	mg/L	4	4	4	4	4
EP030: Biochemical Oxygen Demand	---	2	mg/L	<2	<2	<2	<2	<2
EM: Microbiological Testing								
EM002: E. coli	---	1	CFU/100 mL	<1	<1	<1	<1	<1



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 330788)								
HK0608335-010	WM 5B	EAO20: Salinity	---	0.1	g/L	<0.1	<0.1	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 330811)								
HK0608309-001	Anonymous	EAO25: Suspended Solids (SS)	---	2	mg/L	165	158	4.1
HK0608335-007	WM 4S	EAO25: Suspended Solids (SS)	---	2	mg/L	<2	<2	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 330763)								
HK0608372-005	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	0.08	0.08	0.0
HK0608282-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.5	<0.1	133
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331287)								
HK0608335-010	WM 5B	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0
HK0608377-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	2.41	2.48	2.9
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331715)								
HK0608335-002	WM 1B	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.0
HK0608391-001	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.9	0.9	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331716)								
HK0608335-002	WM 1B	EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	0.0
HK0608371-039	Anonymous	EK067A: Total Phosphorus as P	---	0.1	mg/L	2.1	2.1	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)								
HK0608335-010	WM 5B	EK053A: Silica	7631-86-9	0.01	mg/L	7.12	6.42	10.2
HK0608335-008	WM 4B	EK053A: Silica	7631-86-9	0.01	mg/L	7.09	6.12	14.8
EP: Aggregate Organics (QC Lot: 332220)								
HK0608486-001	Anonymous	EP026: Chemical Oxygen Demand	---	2	mg/L	5	4	22.2
EP: Aggregate Organics (QC Lot: 333558)								
HK0608335-010	WM 5B	EP008: Chlorophyll a	---	0.5	mg/m3	1.3	1.4	7.4

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER				Method Blank (MB) Results		Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results					
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	Control Limit
						SCS	DCS	Low	High		
EA/ED: Physical and Aggregate Properties (QC Lot: 330788)											
EAO20: Salinity	---	0.1	g/L	<0.1	10 g/L	104	---	85	115	---	---
EA/ED: Physical and Aggregate Properties (QC Lot: 330811)											
EAO25: Suspended Solids (SS)	---	2	mg/L	<2	20 mg/L	101	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 330763)											
EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	0.4 mg/L	108	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331287)											
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.4 mg/L	110	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331715)											

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Matrix Type: WATER				Method Blank (MB) Results		Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results					
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	Control Limit
						SCS	DCS	Low	High		
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331715) - continued											
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	0.5 mg/L	105	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331716)											
EK067A: Total Phosphorus as P	---	0.10	mg/L	<0.10	0.5 mg/L	103	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)											
EK053A: Silica	7631-86-9	0.01	mg/L	<0.01	0.4 mg/L	90.9	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 330766)											
EP030: Biochemical Oxygen Demand	---	2	mg/L	---	198 mg/L	100	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 332220)											
EP026: Chemical Oxygen Demand	---	2	mg/L	---	500 mg/L	99.6	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 333558)											
EP008: Chlorophyll a	---	0.1	mg/m3	<0.1	10.03 mg/m3	96.0	---	85	115	---	---

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results						
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	Control Limit
					MS	MSD	Low	High		
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 330763)										
HK0608322-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	1.0 mg/L	103	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331287)										
HK0608335-001	WM 1S	EK055A: Ammonia as N	7664-41-7	0.5 mg/L	98.5	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331715)										
HK0608335-001	WM 1S	EK061A: Total Kjeldahl Nitrogen as N	---	0.5 mg/L	101	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 331716)										
HK0608335-001	WM 1S	EK067A: Total Phosphorus as P	---	0.5 mg/L	101	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)										
HK0608335-001	WM 1S	EK053A: Silica	7631-86-9	2.5 mg/L	88.1	---	75	125	---	---
EP: Aggregate Organics (QC Lot: 332220)										
HK0608325-001	Anonymous	EP026: Chemical Oxygen Demand	---	500 mg/L	95.6	---	75	125	---	---

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CERTIFICATE OF ANALYSIS

Client	: MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 6
Contact	: MS CONNIE WONG	Contact	: Alice Wong	Work Order	: HK0700041
Address	: 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: connie.wong@maunsell.aecom.com	E-mail	: alice.wong@alsenviro.com		
Telephone	: +852 3105 8530	Telephone	: +852 2610 1044		
Facsimile	: +852 2891 0305	Facsimile	: +852 2610 2021		
Project	: 60016794	Quote number	: ---	Date received	: 3 Jan 2007
Order number	: ---			Date of issue	: 11 Jan 2007
C-O-C number	: ---			No. of samples	- Received : 10
Site	: WRC			- Analysed	: 10

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<u>Signatory</u>	<u>Position</u>	<u>Authorised results for-</u>
Fung Lim Chee, Richard	General Manager	Inorganics

ALS Laboratory Group
Trading Name: ALS Technichem (HK) Pty Ltd
11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com
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Page Number : 2 of 6
Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD
Work Order : HK0700041



Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0700041 supersedes any previous reports with this reference. The completion date of analysis is 8 Jan 2007. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0700041 :
 Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.
 In marine and freshwater samples, chlorophyll b will cause some interference if present.
 Project Name: EM&A for WRC at Penny's Bay.
 Ten water samples were received in a chilled condition.
 Water sample(s) analysed and reported on as received basis.



Analytical Results

				Client Sample ID :	WM 1S	WM 1B	WM 2S	WM 2B	WM 3S
				Laboratory Sample ID :	HK0700041-001	HK0700041-002	HK0700041-003	HK0700041-004	HK0700041-005
				Sample Date / Time :	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]
Submatrix: WATER									
Method: Analysis Description	CAS number	LOR	Units						
EA/ED: Physical and Aggregate Properties									
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters									
EK053A: Silica	7631-86-9	0.01	mg/L	7.11	6.98	6.84	6.59	6.11	
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	0.1	0.1	0.1	0.1	0.1	
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.2	0.2	0.2	
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.3	0.3	0.3	
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP: Aggregate Organics									
EP008: Chlorophyll a	---	0.5	µg/L	1.5	1.6	1.4	1.8	1.7	



Analytical Results

				Client Sample ID :	WM 3B	WM 4S	WM 4B	WM 5S	WM 5B
				Laboratory Sample ID :	HK0700041-006	HK0700041-007	HK0700041-008	HK0700041-009	HK0700041-010
				Sample Date / Time :	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]	[3 Jan 2007]
Submatrix: WATER									
Method: Analysis Description	CAS number	LOR	Units						
EA/ED: Physical and Aggregate Properties									
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters									
EK053A: Silica	7631-86-9	0.01	mg/L	6.42	6.57	6.44	6.22	6.52	
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	0.1	0.1	0.1	0.1	0.1	
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.2	0.2	0.2	
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.3	0.3	0.3	0.3	
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP: Aggregate Organics									
EP008: Chlorophyll a	---	0.5	µg/L	1.5	1.8	1.7	1.6	1.4	



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 332133)								
HK0700036-001	Anonymous	EA025: Suspended Solids (SS)	---	2	mg/L	10	10	0.0
HK0700041-004	WM 2B	EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 332218)								
HK0700041-001	WM 1S	EA020: Salinity	---	0.1	g/L	<0.1	<0.1	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)								
HK0608335-010	Anonymous	EK053A: Silica	7631-86-9	0.01	mg/L	7.12	6.42	10.2
HK0608335-008	Anonymous	EK053A: Silica	7631-86-9	0.01	mg/L	7.09	6.12	14.8
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332287)								
HK0700005-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	26.6	27.2	1.9
HK0700047-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	29.7	29.3	1.4
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332548)								
HK0700041-002	WM 1B	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.0
HK0607705-004	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	1010	989	1.9
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332549)								
HK0700041-002	WM 1B	EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	0.0
HK0607776-001	Anonymous	EK067A: Total Phosphorus as P	---	0.1	mg/L	1.1	1.0	11.3
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332804)								
HK0700092-002	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	2.83	2.76	2.5
HK0700165-007	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	0.59	0.59	0.0
EP: Aggregate Organics (QC Lot: 333558)								
HK0608335-010	Anonymous	EP008: Chlorophyll a	---	0.5	mg/m3	1.3	1.4	7.4

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 332133)											
EA025: Suspended Solids (SS)	---	2	mg/L	<2	20 mg/L	99.0	---	85	115	---	---
EA/ED: Physical and Aggregate Properties (QC Lot: 332218)											
EA020: Salinity	---	0.1	g/L	<0.1	10 g/L	102	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)											
EK053A: Silica	7631-86-9	0.01	mg/L	<0.01	0.4 mg/L	90.9	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332234)											
EK053A: Silica	7631-86-9	0.01	mg/L	<0.01	0.4 mg/L	93.6	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332287)											
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.4 mg/L	99.9	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332548)											

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Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332548) - continued											
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	0.5 mg/L	88.9	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332549)											
EK067A: Total Phosphorus as P	---	0.1	mg/L	<0.1	0.5 mg/L	96.8	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332804)											
EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	0.4 mg/L	108	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 333558)											
EP008: Chlorophyll a	---	0.1	mg/m3	<0.1	10.03 mg/m3	96.0	---	85	115	---	---

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: WATER		Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results								
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332233)										
HK0608335-001	Anonymous	EK053A: Silica	7631-86-9	2.5 mg/L	88.1	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332234)										
HK0700041-001	WM 1S	EK053A: Silica	7631-86-9	5 mg/L	99.2	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332287)										
HK0700030-001	Anonymous	EK055A: Ammonia as N	7664-41-7	10 mg/L	104	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332548)										
HK0700041-003	WM 2S	EK061A: Total Kjeldahl Nitrogen as N	---	5 mg/L	90.4	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332549)										
HK0700041-003	WM 2S	EK067A: Total Phosphorus as P	---	5 mg/L	103	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 332804)										
HK0700079-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	1.0 mg/L	112	---	75	125	---	---

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CERTIFICATE OF ANALYSIS

Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD	Laboratory : ALS Technichem (HK) Pty Ltd	Page : 1 of 6
Contact : MS CONNIE WONG	Contact : Alice Wong	Work Order : HK0700321
Address : 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T. HONG KONG	Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	
E-mail : connie.wong@maunsell.aecom.com	E-mail : alice.wong@alsenviro.com	
Telephone : +852 3105 8530	Telephone : +852 2610 1044	
Facsimile : +852 2891 0305	Facsimile : +852 2610 2021	
Project : 60016794	Quote number : ---	Date received : 9 Jan 2007
Order number : ---		Date of issue : 18 Jan 2007
C-O-C number : ---		No. of samples - Received : 10
Site : WRC		- Analysed : 10

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Signatory	Position	Authorised results for:-
Fung Lim Chee, Richard	General Manager	Inorganics
Leung Sai Ho, Ivan	Supervisor	Microbiology

ALS Laboratory Group
 Trading Name: ALS Technichem (HK) Pty Ltd
 11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
 Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com
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Page Number : 2 of 6
Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD
Work Order : HK0700321



Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0700321 supersedes any previous reports with this reference. The completion date of analysis is 17 Jan 2007. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0700321 :

- Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.
- In marine and freshwater samples, chlorophyll b will cause some interference if present.
- Project Name: EM&A for WRC at Penny's Bay.
- Water sample(s) analysed and reported on an as received basis.
- Ten water samples were received in a chilled condition.
- Water sample(s) analysed and reported on an as received basis.
- Samples were arrived in the laboratory at 11:30. Samples, in 100mL glass bottle labelled sterile, with addition of sodium thiosulfate solution. Testing period : 09/01/2007 (16:45) - 11/01/2007.



Analytical Results

				Client Sample ID : WM 1S	WM 1B	WM 2S	WM 2B	WM 3S
				Laboratory Sample ID : HK0700321-001	HK0700321-002	HK0700321-003	HK0700321-004	HK0700321-005
				Sample Date / Time : [9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	7.40	7.43	7.08	7.47	7.67
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	0.1	0.1	0.1	0.1	<0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	0.1
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.1	0.1	0.1	0.1	0.1
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	0.7	1.2	1.3	1.1	1.3
EP026: Chemical Oxygen Demand	---	2	mg/L	3	<2	<2	2	<2
EP030: Biochemical Oxygen Demand	---	2	mg/L	<2	<2	<2	<2	<2
EM: Microbiological Testing								
EM002: E. coli	---	1	CFU/100 mL	<1	<1	<1	<1	<1



Analytical Results

				Client Sample ID : WM 3B	WM 4S	WM 4B	WM 5S	WM 5B
				Laboratory Sample ID : HK0700321-006	HK0700321-007	HK0700321-008	HK0700321-009	HK0700321-010
				Sample Date / Time : [9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]	[9 Jan 2007]
Method: Analysis Description	CAS number	LOR	Units					
EA/ED: Physical and Aggregate Properties								
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters								
EK053A: Silica	7631-86-9	0.01	mg/L	7.43	7.50	7.30	7.38	7.40
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	0.1
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	0.1	<0.1	<0.1	<0.1
EK062A: Total Nitrogen as N	---	0.1	mg/L	<0.1	0.1	<0.1	<0.1	0.1
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EP: Aggregate Organics								
EP008: Chlorophyll a	---	0.5	µg/L	1.1	1.7	1.4	1.5	1.4
EP026: Chemical Oxygen Demand	---	2	mg/L	3	3	3	4	3
EP030: Biochemical Oxygen Demand	---	2	mg/L	<2	<2	<2	<2	<2
EM: Microbiological Testing								
EM002: E. coli	---	1	CFU/100 mL	<1	<1	<1	<1	<1



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 334585)								
HK0700270-001	Anonymous	EA025: Suspended Solids (SS)	---	2	mg/L	9	10	18.0
HK0700321-007	WM 4S	EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 336769)								
HK0700294-001	Anonymous	EA020: Salinity	---	1.0	g/L	33.2	33.8	1.8
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334827)								
HK0700339-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	23.6	23.6	0.0
HK0700376-003	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	16.7	16.1	3.6
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334829)								
HK0700321-010	WM 5B	EK053A: Silica	7631-86-9	0.01	mg/L	7.40	7.32	1.1
HK0700321-009	WM 5S	EK053A: Silica	7631-86-9	0.01	mg/L	7.38	7.39	0.1
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335387)								
HK0700413-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	0.04	0.04	0.0
HK0700439-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.10	mg/L	<0.1	<0.10	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335895)								
HK0700167-003	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	---	0.05	mg/L	28.7	27.8	3.2
HK0700321-006	WM 3B	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	<0.1	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335896)								
HK0700321-006	WM 3B	EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	0.0
HK0700321-009	WM 5S	EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335897)								
HK0700321-009	WM 5S	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	<0.1	0.0
HK0700445-003	Anonymous	EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	30.1	30.7	2.0
EP: Aggregate Organics (QC Lot: 336783)								
HK0700397-002	Anonymous	EP026: Chemical Oxygen Demand	---	15	mg/L	1320	1300	1.5
EP: Aggregate Organics (QC Lot: 338160)								
HK0700321-010	WM 5B	EP008: Chlorophyll a	---	0.5	mg/m3	1.4	1.0	33.3

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 334585)											
EA025: Suspended Solids (SS)	---	2	mg/L	<2	20 mg/L	108	---	85	115	---	---
EA/ED: Physical and Aggregate Properties (QC Lot: 336769)											
EA020: Salinity	---	0.1	g/L	<0.1	30 g/L	104	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334827)											
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.4 mg/L	93.2	---	85	115	---	---

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Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334829)											
EK053A: Silica	7631-86-9	0.01	mg/L	<0.01	0.5 mg/L	99.6	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335387)											
EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	0.4 mg/L	97.0	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335895)											
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	0.5 mg/L	104	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335896)											
EK067A: Total Phosphorus as P	---	0.1	mg/L	<0.1	0.5 mg/L	103	---	85	115	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335897)											
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	0.5 mg/L	100	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 334583)											
EP030: Biochemical Oxygen Demand	---	2	mg/L	---	198 mg/L	103	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 336783)											
EP026: Chemical Oxygen Demand	---	2	mg/L	---	500 mg/L	100	---	85	115	---	---
EP: Aggregate Organics (QC Lot: 338160)											
EP008: Chlorophyll a	---	0.1	mg/m3	<0.1	9.03 mg/m3	96.4	---	85	115	---	---

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: WATER		Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results								
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334827)										
HK0700376-005	Anonymous	EK055A: Ammonia as N	7664-41-7	5 mg/L	103	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 334829)										
HK0700321-001	WM 1S	EK053A: Silica	7631-86-9	10 mg/L	104	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335387)										
HK0700413-002	Anonymous	EK059A: Nitrite + Nitrate as N	---	1.0 mg/L	113	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335895)										
HK0700321-001	WM 1S	EK061A: Total Kjeldahl Nitrogen as N	---	0.5 mg/L	122	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335896)										
HK0700321-001	WM 1S	EK067A: Total Phosphorus as P	---	0.5 mg/L	103	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 335897)										
HK0700321-010	WM 5B	EK061A: Total Kjeldahl Nitrogen as N	---	0.5 mg/L	115	---	75	125	---	---
EP: Aggregate Organics (QC Lot: 336783)										
HK0700400-002	Anonymous	EP026: Chemical Oxygen Demand	---	500 mg/L	99.2	---	75	125	---	---

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CERTIFICATE OF ANALYSIS

Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD	Laboratory : ALS Technichem (HK) Pty Ltd	Page : 1 of 6
Contact : MS LEMON LAM	Contact : Alice Wong	Work Order : HK0700637
Address : 11/F, TOWER 2, GRAND CENTRAL PLAZA, 138 SHATIN RURAL COMMITTEE ROAD, SHATIN, N.T. HONG KONG	Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	
E-mail : lemon.lam@maunsell.aecom.com	E-mail : alice.wong@alsenviro.com	
Telephone : +852 2893 1551	Telephone : +852 2610 1044	
Facsimile : +852 2891 0305	Facsimile : +852 2610 2021	
Project : 60016794	Quote number : --	Date received : 15 Jan 2007
Order number : --		Date of issue : 22 Jan 2007
C-O-C number : --		No. of samples - Received : 10
Site : WRC		- Analysed : 10

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<u>Signatory</u>	<u>Position</u>	<u>Authorised results for:-</u>
Fung Lim Chee, Richard	General Manager	Inorganics

ALS Laboratory Group
Trading Name: ALS Technichem (HK) Pty Ltd
11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com
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Page Number : 2 of 6
Client : MAUNSELL ENVIRONMENTAL MANAGEMENT CONSULTANTS LTD
Work Order : HK0700637



Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0700637 supersedes any previous reports with this reference. The completion date of analysis is 18 Jan 2007. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0700637 :
 Total Nitrogen is the sum of Total Oxidizable and Total Kjeldahl Nitrogen.
 In marine and freshwater samples, chlorophyll b will cause some interference if present.
 Project Name: EMSA for WRC at Penny's Bay.
 Ten water samples were received in a chilled condition.
 Water sample(s) analysed and reported on an as received basis.



Analytical Results

				Client Sample ID :	WM 1S	WM 1B	WM 2S	WM 2B	WM 3S
				Laboratory Sample ID :	HK0700637-001	HK0700637-002	HK0700637-003	HK0700637-004	HK0700637-005
				Sample Date / Time :	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]
Submatrix: WATER									
Method: Analysis Description	CAS number	LOR	Units						
EA/ED: Physical and Aggregate Properties									
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters									
EK053A: Silica	7631-86-9	0.01	mg/L	7.27	7.29	7.48	7.49	7.44	
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.02	0.02	<0.01	
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	0.1	<0.1	<0.1	0.1	0.1	
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.2	0.2	0.1	<0.1	0.1	
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.3	0.2	0.1	0.1	0.2	
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP: Aggregate Organics									
EP008: Chlorophyll a	---	0.5	µg/L	1.5	1.6	1.4	1.5	1.3	



Analytical Results

				Client Sample ID :	WM 3B	WM 4S	WM 4B	WM 5S	WM 5B
				Laboratory Sample ID :	HK0700637-006	HK0700637-007	HK0700637-008	HK0700637-009	HK0700637-010
				Sample Date / Time :	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]	[15 Jan 2007]
Submatrix: WATER									
Method: Analysis Description	CAS number	LOR	Units						
EA/ED: Physical and Aggregate Properties									
EA020: Salinity	---	0.1	g/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	<2	<2	<2	<2
ED/EK: Inorganic Nonmetallic Parameters									
EK053A: Silica	7631-86-9	0.01	mg/L	7.43	7.28	7.47	7.51	7.50	
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	0.01	0.01	
EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	0.1	0.1	0.1	0.1	0.1	
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.1	0.2	0.2	0.2	0.2	
EK062A: Total Nitrogen as N	---	0.1	mg/L	0.2	0.3	0.4	0.3	0.3	
EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	
EP: Aggregate Organics									
EP008: Chlorophyll a	---	0.5	µg/L	1.4	1.3	1.6	1.4	1.5	



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 338156)								
HK0700637-001	WM 1S	EA025: Suspended Solids (SS)	---	2	mg/L	<2	<2	0.0
HK0700655-001	Anonymous	EA025: Suspended Solids (SS)	---	2	mg/L	114	121	6.2
EA/ED: Physical and Aggregate Properties (QC Lot: 338171)								
HK0700617-001	Anonymous	EA020: Salinity	---	1.0	g/L	31.6	31.2	1.3
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337680)								
HK0700637-006	WM 3B	EK067A: Total Phosphorus as P	---	0.02	mg/L	<0.02	<0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337829)								
HK0700604-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	11.9	11.8	0.4
HK0700637-002	WM 1B	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337830)								
HK0700603-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	7.47	7.36	1.6
HK0700698-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.01	mg/L	19.6	19.8	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 338606)								
HK0700637-002	WM 1B	EK059A: Nitrite + Nitrate as N	---	0.1	mg/L	<0.1	0.1	0.0
HK0700757-002	Anonymous	EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	209	201	3.8
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 339127)								
HK0700479-001	Anonymous	EK053A: Silica	7631-86-9	0.01	mg/L	0.07	0.07	0.0
HK0700637-002	WM 1B	EK053A: Silica	7631-86-9	0.01	mg/L	7.29	7.42	1.7
EP: Aggregate Organics (QC Lot: 338160)								
HK0700321-010	Anonymous	EP008: Chlorophyll a	---	0.5	mg/m3	1.4	1.0	33.3
EP: Aggregate Organics (QC Lot: 338161)								
HK0700637-010	WM 5B	EP008: Chlorophyll a	---	0.5	mg/m3	1.5	1.3	14.3

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER				Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results					
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
						SCS	DCS	Low	High	Value	Control Limit	
EA/ED: Physical and Aggregate Properties (QC Lot: 338156)												
EA025: Suspended Solids (SS)	---	2	mg/L	<2	20 mg/L	100	---	85	115	---	---	
EA/ED: Physical and Aggregate Properties (QC Lot: 338171)												
EA020: Salinity	---	0.1	g/L	<0.1	30 g/L	106	---	85	115	---	---	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337679)												
EK061A: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	---	---	---	---	---	---	---	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337680)												
EK067A: Total Phosphorus as P	---	0.1	mg/L	<0.1	0.5 mg/L	98.4	---	85	115	---	---	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337829)												
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.4 mg/L	98.8	---	85	115	---	---	

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Matrix Type: WATER				Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results					
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
						SCS	DCS	Low	High	Value	Control Limit	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337830)												
EK055A: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.4 mg/L	90.9	---	85	115	---	---	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 338606)												
EK059A: Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	0.4 mg/L	106	---	85	115	---	---	
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 339127)												
EK053A: Silica	7631-86-9	0.01	mg/L	<0.01	0.05 mg/L	99.8	---	85	115	---	---	
EP: Aggregate Organics (QC Lot: 338160)												
EP008: Chlorophyll a	---	0.1	mg/m3	<0.1	9.03 mg/m3	96.4	---	85	115	---	---	
EP: Aggregate Organics (QC Lot: 338161)												
EP008: Chlorophyll a	---	0.1	mg/m3	<0.1	9.03 mg/m3	93.9	---	85	115	---	---	

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results						
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
					MS	MSD	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337679)										
HK0700637-004	WM 2B	EK061A: Total Kjeldahl Nitrogen as N	---	0.5 mg/L	124	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337680)										
HK0700637-004	WM 2B	EK067A: Total Phosphorus as P	---	0.5 mg/L	103	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337829)										
HK0700606-001	Anonymous	EK055A: Ammonia as N	7664-41-7	5 mg/L	104	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 337830)										
HK0700601-001	Anonymous	EK055A: Ammonia as N	7664-41-7	20 mg/L	96.8	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 338606)										
HK0700757-001	Anonymous	EK059A: Nitrite + Nitrate as N	---	1.0 mg/L	108	---	75	125	---	---
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 339127)										
HK0700637-001	WM 1S	EK053A: Silica	7631-86-9	5 mg/L	112	---	75	125	---	---

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Appendix G ^{3/4} Summary of Environmental Mitigation Implementation Schedule

Reference	Mitigation Measures	Status
	<i>Water Quality</i>	
EIA Report 5.11.2	<ul style="list-style-type: none"> The lake shall be lined with an impermeable liner. However, as such liners may have a limited life span, beyond which the performance may deteriorates, the liner shall be replaced once the manufacturer's specified lifespan is reached. 	√
EIA Report 5.11.2	<ul style="list-style-type: none"> Stormwater run-off from surrounding hillsides shall pass through silt traps prior to entering the artificial lake to prevent siltation. The silt traps shall be designed to have adequate capacity to retain any silt/sediment contained within the stormwater. The silt traps shall be frequently maintained/cleaned to prevent a deterioration in performance. 	√
EIA Report 5.11.2, EP 3.7	<ul style="list-style-type: none"> Should the quality of the water in the Tai Lam Chung Reservoir deteriorate below the present levels an alternate supply of water, of a quality at least as good as that within the Tai Lam Chung Reservoir, shall be used to 'top up' the water within the lake. 	N/A
EIA Report 5.11.2, EP 3.8, 3.9	<ul style="list-style-type: none"> If it becomes necessary to add an algicide to the lake to control algal growth, the algicide shall be biodegradable with a short half life of three days or less. During use of the algicide discharge of the lake water to the marine waters shall be prohibited, until the algicide has decayed. The algicide shall not be used during periods of heavy rainfall when overflow of the lake is possible. 	N/A
EIA Report 5.11.2, EP 3.6	<ul style="list-style-type: none"> Stormwater from any urban/developed areas shall not be allowed to enter the lake as they may contain pollutants. Sewage effluent from the water recreation centre shall be transported to the sewerage mains for conveyance to the Siu Ho Wan STW. 	√
EIA Report 5.11.2, EP 3.10	<ul style="list-style-type: none"> Any fuel for motorised water sports vessels shall be stored in bunded areas, of at least 110% capacity of the largest fuel storage container to prevent any accidental spills entering the lake. 	N/A
EIA Report 5.11.2	<ul style="list-style-type: none"> Servicing of any water sports vessels shall be undertaken at suitable facilities away from the artificial lake. In the event that fuel or other petroleum products enter the lake, a suitable clean-up plan shall be implemented. The clean-up plan being devised by the operators of the water recreation centre and approved by EPD prior to the commencement of operations at the water sports centre. 	√
	<i>Waste</i>	
EIA Report 5.11.2	<ul style="list-style-type: none"> To minimise the potential adverse impacts to aesthetics and odour impacts, the HKITP should maintain floating refuse collection initiatives at both the coast of the Theme Park and within the artificial lake of the Water Recreation Centre. 	√

Note:

- √ Compliance of mitigation measure
- × Non-compliance of mitigation measures
- Non-compliance but rectified
- N/A Not applicable

Appendix H ³/₄ Event and Action Plans

Event and Action Plan for Water Quality

Exceedance	ETL	HKITP	IEC
Action Level			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings. 2. Identify the source(s) of impact (e.g. intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods. 5. Discuss mitigation measures with HKITP and IEC. 6. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 2. Rectify unacceptable practice and propose mitigation measures. 3. Make agreement on the mitigation measures to be implemented. 4. Implement the agreed mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with ETL and HKITP on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3. Assess the effectiveness of the implemented mitigation measures.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings. 2. Identify the source(s) of impact (eg intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods 5. Discuss mitigation measures with HKITP and IEC. 6. Ensure mitigation measures are implemented. 7. Prepare to increase monitoring frequency to assess efficacy of remedial measures. 8. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 2. Rectify unacceptable practice and propose mitigation measures. 3. Make agreement on the mitigation measures to be implemented. 4. Implement the agreed mitigation measures 5. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3. .Assess the effectiveness of the implemented mitigation measures

Exceedance	ETL	HKITP	IEC
Limit Level			
1. Exceedance for one sample	<ol style="list-style-type: none"> Repeat measurement to confirm findings. Identify the source(s) of impact (eg intake water). Inform HKITP and IEC. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods Discuss mitigation measures with HKITP and IEC. Ensure mitigation measures are implemented. Increase monitoring frequency to daily until no exceedance of Limit Level. 	<ol style="list-style-type: none"> Inform EPD of exceedance. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. Rectify unacceptable practice and propose mitigation measures. Make agreement on the mitigation measures to be implemented. Implement the agreed mitigation measures Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. Review proposals on mitigation measures by HKITP. Assess the effectiveness of the implemented mitigation measures
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Repeat measurement to confirm findings. Identify the source(s) of impact (eg intake water). Inform HKITP and IEC. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods Discuss mitigation measures with HKITP and IEC. Ensure mitigation measures are implemented. Increase monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. 	<ol style="list-style-type: none"> Inform EPD of exceedance. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. Rectify unacceptable practice and propose mitigation measures. Make agreement on the mitigation measures to be implemented. Implement the agreed mitigation measures Assess the effectiveness of the implemented mitigation measures Consider to slow down or to stop all or part of the water-based activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. Review proposals on mitigation measures by HKITP. Assess the effectiveness of the implemented mitigation measures

